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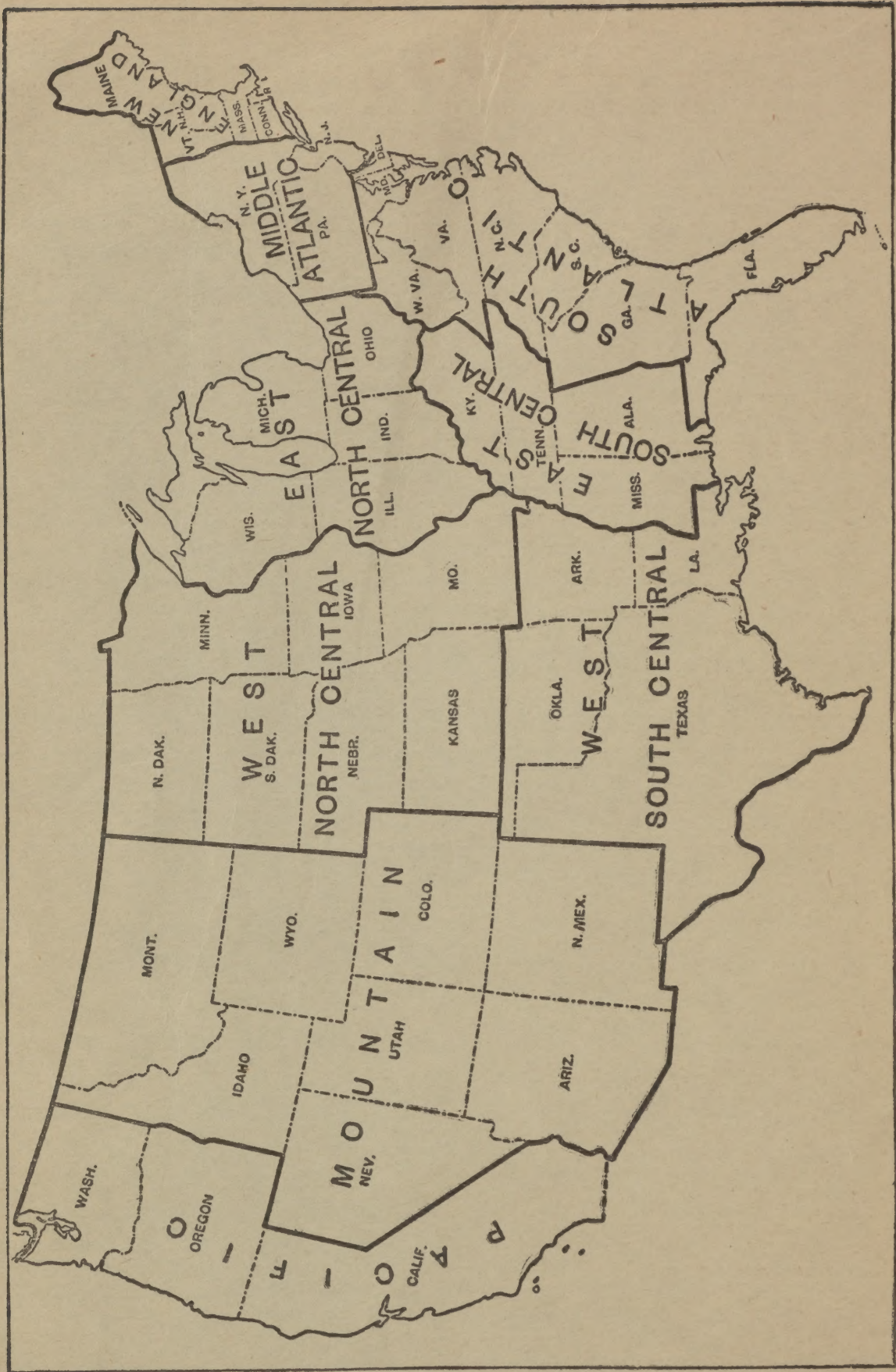
PAUL V. McNUTT, Administrator

**National Youth Administration
Aubrey Williams, Administrator**

**United States Public Health Service
Thomas Parran, Surgeon General**

THE HEALTH STATUS OF NYA YOUTH

**A Nation-Wide Survey of Youth on the
Out-of-School Work Programs of the
National Youth Administration**



FRONTISPICE—Map Showing Census Regions.

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THE HEALTH STATUS OF NYA YOUTH

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FOREWORD

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This report deals with the health status of youth employed or seeking employment on out-of-school work programs of the National Youth Administration in the United States. It is based upon the findings of complete physical examinations of NYA youth and analyzes the nearly 150,000 examinations made during the first three-quarters of 1941 throughout the entire United States. No subsequent reports by separate census regions will be published, but sets of tables presenting the most important findings have been prepared for each such region and are available to those interested, upon request to the United States Public Health Service.

This study was undertaken as a part of the Nation-wide health program for NYA youth employees. This program was conducted by the National Youth Administration under the general direction of Dr. Carl E. Rice, national health director of that organization. The United States Public Health Service cooperated in the development and conduct of the NYA health program and sponsored the tabulation of the examination records. Its Division of Public Health Methods of the National Institute of Health worked with the Division of Finance and Statistics of the National Youth Administration in planning this study and in tabulating and analyzing the data.

Acknowledgments are made to the following individuals who are (or were) connected with the National Youth Administration: Mr. Irving Swerdlow, former Chief of the Statistics Section of the Division of Finance and Statistics, under whose general direction the study was conducted; Mr. James S. Fitzgerald, of his office, who rendered valuable assistance in the important work of drawing up the examination form and punch card; Miss Irma Ringe and Miss Helen Hollingsworth, who assisted in planning the tabulation and preliminary analysis; and Mr. Maurice Lipian and Dr. Neil J. Van Steenberg, under whose direction the analysis of the data was completed. Further acknowledgments are made to Mr. Rollo H. Britten and Dr. Selwyn D. Collins, both of the Division of Public Health Methods, National Institute of Health, whose advice and suggestions were of great value throughout the study.

This manuscript was prepared by Mr. Arthur J. McDowell of the National Institute of Health and Mr. Thomas N. Meroney of the National Youth Administration. The responsibility for the conclusions presented herein is that of these authors. The work of processing and tabulating these data was done by an NYA work project in the State of Illinois. This work was directed by Mr. McDowell, with the assistance of Mr. Meroney.

A word is in order concerning the arrangement of the present paper. The entire discussion of the type of examination made, the manner in which the sample was selected, and a number of related matters, all of definite importance in any detailed consideration of the findings, has been placed in the appendix. This was done to facilitate reading of the report by persons concerned with the general health needs of groups within the population. Those interested in methodology might well read appendix A first and then the text proper.

INTRODUCTION

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I. INTRODUCTION

Twenty-five years ago, when this country fought in the First World War, literally millions of young men received physical examinations to determine whether they were physically fit to serve in the armed forces. Nearly one-third of those examined were disqualified for unlimited military service because of some physical defect.¹ Now a new generation has grown up and—in the emergency of a war—the health of this new generation is being appraised. And from this appraisal it becomes clear that here is one more unlearned lesson of that previous war. The Nation is shocked to discover that this time far more than one-third—perhaps even one-half—of the young men examined have been disqualified for unlimited military service because of physical defects.² Without considering the effects of changes in standards or in examining procedures, it is evident that a serious state of ill health still exists. Very many of these defects can be corrected. Still more of them could have been prevented or corrected if community machinery had existed for handling the problem earlier.

Medical scientists have been extremely successful in their search for the knowledge necessary to solve our health problems. Diseases have been traced to causes, causes have been matched by preventive techniques, and diseases matched by cures. Whether our country learns to apply this knowledge successfully remains to be seen. One of the most important of our health problems is physically impaired youth. It is certain that this problem will not be solved until its existence is recognized and its nature examined. Any program of rehabilitation, any plan for matching the incidence of defects with measures to correct them, must be based on information as to the extent of existing defects, their nature and distribution among various population groups, their rate of incidence, and their effect on youth. It is hoped that the present study furnishes some of

this needed information. It is hoped even more that the matter will not end with the discovery of the facts but that this and other information will be used to help build a healthier people.

The present study consists of the analysis of nearly 150,000 health examination records of NYA youth. They are boys and girls from 16 to 24 years of age who are from low-income families. The examinations, made between January and October 1941, by private physicians paid by the National Youth Administration, have already served useful purposes. They have been used—and are being used—in the placement of NYA youth at work that will not aggravate any existing health defects or endanger fellow workers. They have also been used as a basis for health counseling and guidance in referring youth to physicians, clinics, hospitals, and other health agencies for treatment. The analysis of these examination records will serve several immediate purposes in connection with the program of the National Youth Administration. It provides a necessary foundation for any plans toward meeting the health needs of the youth. It has great potential value as an aid in program planning, in determining what additional steps in recreational activities, nutrition guidance, health counseling, or referral service are necessary to improve the health status, and so the occupational prospects of NYA youth.

In addition to the importance to the National Youth Administration of an analysis of these health examination records, the findings have broader implications and significance. Research workers in the field of health are keenly aware of the lack of adequate information on the health of youth. Previous studies have furnished some information on the problem but have had various shortcomings. Some of them, based on examinations of school children, concern a younger age group than NYA youth. Some of the studies have suffered from the necessity of being based on examinations already made under conditions that did not insure comparability. Others, such as the National Health Survey, have had a somewhat different aim in that they have sought primarily to determine incidence and duration of disability over a time period. They have therefore used the technique of visits to family members

¹ Britten, Rollo H. and Perrott, George St. J.: Summary of Physical Findings on Men Drafted in the World War. Public Health Reports, vol. 56, No. 2, January 10, 1941, pp. 41-62. See also, Second Report of the Provost Marshal General to the Secretary of War on the Operations of the Selective Service System to December 20, 1918, Washington, D. C., Government Printing Office, 1919. And, Love, Albert G. and Davenport, Charles B.: Defects Found in Drafted Men, Government Printing Office, Washington, 1940.

² National Headquarters, Selective Service System: Analysis of Reports of Physical Examination; their bulletin, Medical Statistics Bulletin No. 1, November 10, 1941. See also, Rowntree, L. G., McGill, K. H., and Folk, O. H.: Health of Selective Service Registrants, Jour. Amer. Med. Ass'n, vol. 118, 1223 (April 1942).

whose statements were the source of most of the data. Studies of this sort yield much information that cannot be obtained from the cross-sectional picture given by single thorough medical examinations. On the other hand, the accuracy and the completeness of the data must depend on the ability of the informant to give accurate and detailed information. For such information as can be obtained at one particular time, then, the reliability of the data should be greatly increased when those data consist of the recorded findings of a doctor who has the individual before him at the time. In relatively small studies, or in studies focussed upon a particular defect, standardized physical examinations have frequently been used, but no comprehensive data are available which picture the general health level of youth.

These data for NYA youth consist of findings recorded on a standard form at the time of the examination. Moreover, all the examinations were made during a relatively limited time period by physicians and dentists employed for the specific purpose and with a definite view to the analysis of comparable data. It is believed, therefore, that the findings yield important information on the physical condition and health defects of American youth.

To what extent may the health findings of NYA youth be used to estimate the health needs of all youth? Certain limitations must be placed on any generalizations made from these data. Probably the most important limitation comes as a result of the economic status of the youth studied. These NYA youth are out of school and are from low-income families. Generalizations based on their health conditions might not hold for college students, for example. On the other hand, it should be remembered that the NYA youth group is not a relief group (although it includes some youth from relief families). The

health conditions of NYA youth may not be the same as those of youth in the lowest economic class. These youth most nearly represent that unfortunately large portion of the population whose low incomes deprive them of adequate housing, food, clothing, and medical care.

Other limitations result from the age of NYA youth and from the fact that they are all unmarried. Conclusions made from these data can only be applied to the unmarried population from 16 to 24 years of age; moreover, the distribution within this age group is not the same for these NYA youth as for the general population. More than two-thirds of the NYA youth who were examined were between the ages of 17 and 20.

In addition to the above factors, the employability status of NYA youth limits their representativeness with respect to the general population. For, on the one hand, these youth were all employed or seeking employment, and so the study might not include a large enough representation of severely handicapped youth; on the other hand, it might include a comparatively large representation of youth with defects which limit but do not prevent employment, since such young people might have been drawn to NYA because of the opportunities there for work experience and training often unavailable to them in industry and trade. The exclusion of defects present in severely handicapped youth would not have a great effect on the rates of specific defects found in this study, but the importance of these relatively few youth as a health problem is greater than their numbers would reveal. The possible overrepresentation of youth who are less severely handicapped, as well as the other limitations mentioned, must be kept in mind in applying the findings of this study to a broader population group. However, if these factors are recognized, the facts about NYA youth furnished much information on the health status of all American youth.

II. GENERAL HEALTH LEVEL OF NYA YOUTH

Evaluation procedures

Evaluating the health status of any group is especially difficult because of the lack of accepted criteria of various "degrees of health." Not only are there no comprehensive indices which make it possible to summarize the presence or absence of various defects and to obtain a total measure of an individual's health, but there is not always even agreement as to what constitutes a defect. Thus, one is unable to say, for example, at exactly what point blood-pressure readings are so low as to constitute "defects," let alone to assign comparative weights to these and other defects. As a result of this lack of standardization, an appraisal of the health of a group is frequently presented in terms of a series of prevalence rates for specified defects—the percent of the group that have heart disease, the percent that have hernia, the percent that have carious teeth, and so on. In this way it is quite possible to obtain a series of pictures of different aspects of the health of the group, each picture showing the group from the standpoint of a particular defect. However, the defects are not mutually exclusive (e. g., some of the youth who have carious teeth also have heart disease, etc.). Therefore, it is not possible to get from these rates a single summary picture that will tell what proportion of the group was free from all defects and what proportions had certain numbers of defects. This method does serve to indicate the total prevalence, in the group studied, of specific defects.

The health status of a group can be evaluated where the evaluation is made with a specific purpose in mind. When this is done the examining physician not only records each of the separate observed defects of a particular person, but records also his evaluation of the total effect of these defects with a view to the specific purpose. Thus, the Selective Service induction examination only not records each defect but includes the judgment of the examiner as to whether the individual is physically fit for unlimited or specifically limited military service. Likewise, the life-insurance medical examiner appraises the examinee in terms of how good an insurance risk the person is. It is essential in such methods that the standards of classification be objectified and standardized insofar as possible for all examiners.

The examinations of the present study included classification of each youth on the basis of employability as determined by health status. The classifying was done by the examining physician according to agreed standards. Every effort was made to insure uniformity in applying the criteria so established. All classifications were reviewed at the central tabulating unit by physicians thoroughly familiar with the standards, and examination records in which classifications did not agree with the findings were returned to the State health director for review with the examining physician. The health status of these NYA youth can be summarized, therefore, in terms of the percentage of all youth examined who were classified at each of the several levels of employability.

Health status and employability classification

The examination form (see appendix B) listed six health status and employability classes. The examining physicians classified the youth according to the agreed standards³ and checked the proper class for each youth. For purposes of analysis, the six classes have been combined into three, as shown below:

Class checked by e-xaminer	Combined here, into—	Includes youth who were—
Class I.....	} Class A.....	Fit for any work.
Class II.....		
Class III.....	} Class B.....	Limited, by their health, in the work they could do.
Class IV.....		
Class V.....	} Class C.....	Unfit for NYA employment, temporarily or permanently.
Class VI.....		

It must be realized that youth in class A may have had many health defects (carious teeth,

³ These standards could not attempt to cover all the possible defects and combinations of defects which would be found. The final classification of the youth was the responsibility of the examining physician. The standards did, however, list the more frequent defects and suggested the probable classification of youth with these defects only. The standards may be summarized as follows: Classes I and II (class A here) included youth whose only defects were such ones as dental pathology, underweight, defective unassisted vision not worse than 20/40 if improvable to 20/20 in each eye, diseased tonsils, hemorrhoids, and slightly abnormal blood pressure (not above 140 or below 105 systolic); classes III and IV (class B here) included youth with such defects as certain heart lesions, high blood pressure (145 or over), loss or paralysis of members, defective hearing, more than a trace of sugar or albumin in the urine, and visual and other defects worse than those indicating class I or II but not completely incapacitating; classes V and VI (class C here) included youth having communicable diseases, severe infestation of intestinal parasites, severe heart lesions, tuberculosis in an active stage, marked orthopedic impairments, and marked mental abnormalities.

diseased tonsils, etc.), but none which limited their employability; youth in class B may have had some of the same defects as those found in class A, but in addition had defects (defective vision, non-severe heart lesions, etc.) which limited their employability; while youth placed in class C most frequently had communicable diseases (including venereal diseases in communicable stages) or severe infestations of intestinal parasites.

General Findings

Sixty-seven percent of all NYA youth examined were classified as "class A"—fit for any work or athletic activity. Thirty percent had health defects which limited their employability to some degree and they were placed in "class B." Three percent were found to be either temporarily or permanently unfit for NYA employment, as indicated by their being placed in "class C."

The relative numbers of youth placed in each health status and employability classification are shown in table 1 separately for all youth, for white and Negro youth, male and female youth, and for male under 21 and male youth 21 and over.

These percentages of youth who were limited in employability are remarkably similar to those reported in a similar study made of nearly 3,000 youth (*not* NYA youth) who sought vocational and industrial training for defense industries in Rochester, N. Y. Using slightly different classes as to employability, that study found that about 33 percent were disqualified for employment until their health defects were corrected.⁴

TABLE 1.—Number and percent of youth classified by health status and employability classes, by sex and color, and—*for males—by age groups. NYA health examinations, United States*

	Health status and employability classification				Total number of youth
	Class A	Class B	Class C	All classifications	
Total.....	67.1	29.9	3.0	100.0	146,567
White.....	67.1	30.3	2.6	100.0	120,357
Negro.....	67.4	27.8	4.8	100.0	26,210
Females.....	67.3	29.9	2.8	100.0	71,096
Males.....	67.1	29.8	3.1	100.0	75,471
Males, 16-20.....	69.2	28.0	2.8	100.0	59,728
Males, 21-24.....	59.2	36.5	4.3	100.0	15,743
Total number of youth ¹	98,459	43,764	4,344	-----	146,567

¹ Excludes 1,096 youth for whom health status and employability classification was unknown.

⁴ Sawyer, W. A.: Medical Aspects of Vocational and Industrial Training, Jour. A. M. A., vol. 118, No. 8, p. 641 (February, 1942). Paper concerning cooperative program between Health Bureau, Tuberculosis Health Ass'n, Medical Society, and Board of Education, presented at Fourth Annual Meeting of the Congress on Industrial Health.

Sex, Color, and Age Differences

The most marked difference found between the health status classifications of white and Negro youth was that a larger percentage of the Negroes was placed in class C—physically unfit for NYA employment. This is probably a result of the higher prevalence of venereal diseases among Negroes. This relatively high proportion of Negro youth in class C was found regardless of the size of the community in which the youth lived.

Almost the same percentages of males as of females were in each of the three classes. For all youth, the proportion of the males who were placed in class C was slightly higher than the similar proportion for females. However, while this differential was true for both white and colored youth, it did not hold true in all of the urbanization groups (groupings by population of the communities in which the youth lived). In the large cities (500,000 and over in population) a slightly higher relative number of females than of males was placed in class C.

While the differences found in employability status among the various sex and color groups were slight except for the color difference noted, there was a definite and pronounced relationship between age and health status as measured by employability. Among males 16 to 20 years of age, 69 percent were fit for any work, 28 percent were fit for limited employment, and less than 3 percent were unfit for NYA employment. Males in the older group, 21 to 24 years of age, showed a consistently worse health picture. Only 59 percent of the older group were in class A, over 36 percent were in class B, and over 4 percent were in class C. These differences between the two age groups were found among both white and Negro males, and, while no separate tabulations by age were made for females, it is safe to assume that they would hold for females too.

The difference in health status between youth in these two age groups is perhaps not unexpected, but it is striking in magnitude. Less than 4 years' difference in median age separates these two groups. Therefore, if the two groups were strictly comparable, these data would indicate that during the next 4 years of life, about one-seventh (14.5 percent) of the youth in the younger group fit for any work might expect to acquire additional health defects that would limit their employability. However, it has been shown⁵ that the prevalence of physical impairments is higher among relief than among nonrelief persons, thus indicating that physical impairments are an important cause of

⁵ Perrott, G. St. J., and Griffin, Helen C. An Inventory of the Serious Disabilities of the Urban Relief Population. Milbank Memorial Fund Quarterly, vol. XIV, No. 3 (July 1936).

unemployment and of remaining on relief. Similarly, the youth who are still in need of NYA employment when they are 21 to 24 years of age may include a larger relative number of handicapped youth than the group of youth at ages of 16 to 20 who need NYA employment. Thus a part of the difference noted here, and later in this paper, between the two age groups may result from this selective factor rather than from increased age. Nevertheless, since many health defects are cumulative with age, there is a tendency—in the absence of efforts toward rehabilitation—for the health level of the population to decline rapidly with increasing age during these years. The importance of beginning a health program among youth at ages before this decline has had a severe effect is evident.

Regional Differences

Since this study included all census regions and all sizes of communities, data are available on the relation between health status and geographic area, on the one hand, and between health status and size of community (urbanization), on the other. The two factors of geographic area and urbanization are interrelated, the South being rural to a greater extent than the Middle Atlantic area, etc. Therefore, it is necessary to hold one factor constant while studying the effect of the other. The following discussion presents data for a specific urbanization group and only for white males between the ages of 16 and 20 in that group. However, the other sex and color groups and other size of community groups were examined, and the conclusions stated concerning the one specific group are true of all the other groups as well.

The bar graph in chart I, based on table 2, shows the relative numbers placed in each employability class for the total United States and for each census region, based only on white male youth between the ages of 16 and 20 and living in communities of from 2,500 to 25,000 population. Considering first the proportions of these youth placed in class C—unfit for any NYA work—it appears clear that there were certain significant differences among the various regions. While for six of the regions the percentages were very nearly the same (all approximately 1 percent), the figures for the East South Central, the West South Central, and, to a lesser extent, the Rocky Mountain region, differed markedly from the six, each showing a higher proportion of youth in class C. In the case of the East South Central region this percentage was 11.6—10 times as high as that for the six more uniform regions. These high proportions of youth unfit for NYA employment were found, upon investigation, to consist of unusually large

numbers of youth classed as “temporarily unfit for work.” In the case of the two southern regions with high proportions in class C, the explanation is, in part, the large number of youth with hookworms (see p. 38), since severe infestations of these parasites placed the youth in this class. The prevalence of venereal diseases was higher in each of these three regions than in the country as a whole. Moreover, in each of these three regions relatively more cases of active tuberculosis were disclosed by these examinations than for other census regions. These factors also influenced the proportion of youth placed in class C.

The percentages of these white male small-city youth placed in class A—fit for any work—varied among the respective regions from about 64 percent in the East South Central to 77 percent in the South Atlantic region. Since class A youth include all youth not placed in class B or C, these percentages may be looked upon as residuals that are affected by two factors, the percentages of youth placed in class B and the corresponding percentages for class C. That is to say, if the percentage placed in class A is relatively low for a particular region, it means that an unusually large proportion of the youth in that region were placed in class B or in class C or in each of these classes. Consequently, since the variations by regions for youth placed in class C have been pointed out, only the variations found among youth placed in class B remain to be discussed here. Since the percentages in class C are so small, they could have had little effect on the percentages in class B and so it is possible to discuss class B youth separately. The one region which may be an exception is considered below.

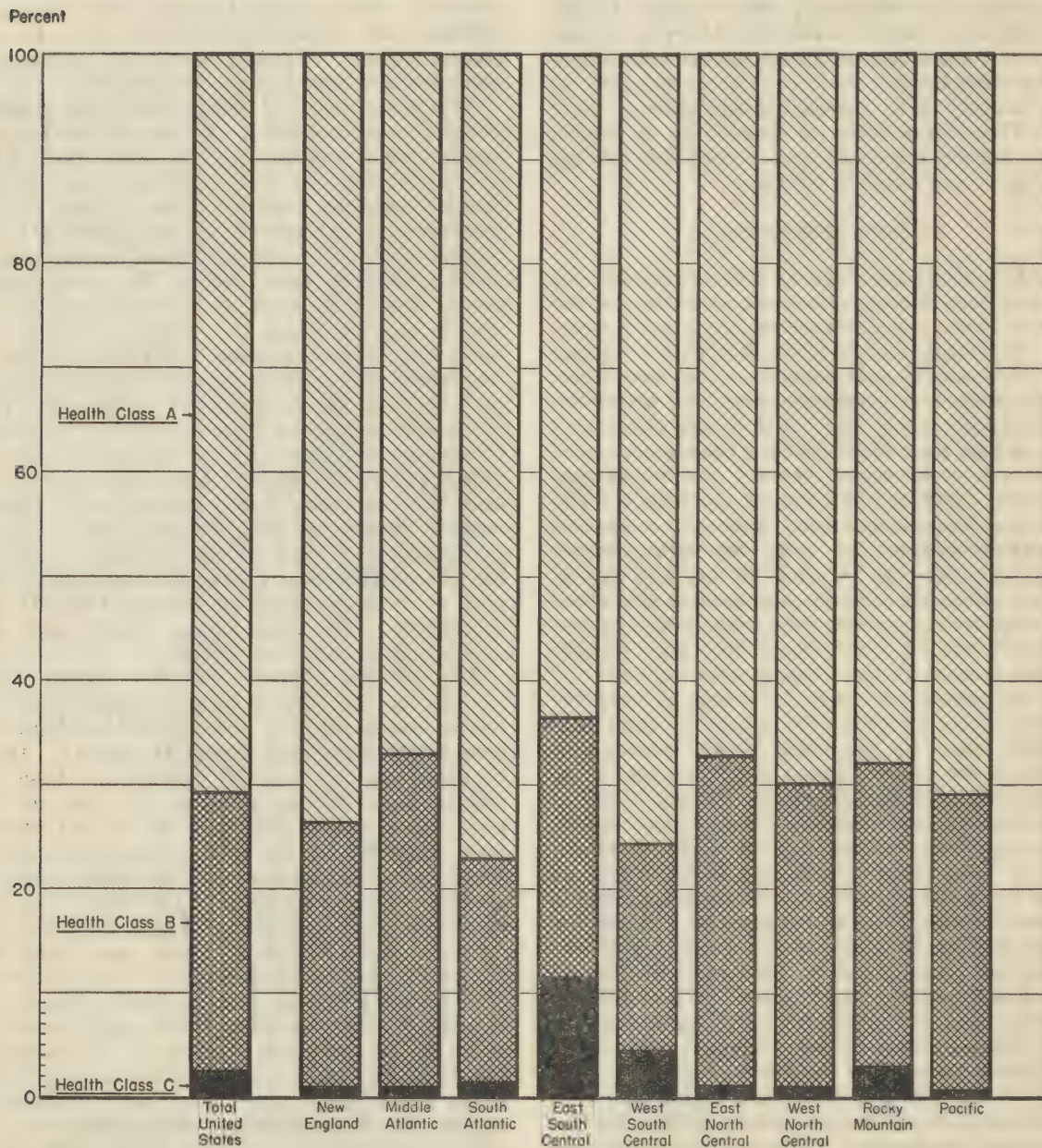
The Middle Atlantic and East North Central regions had the largest proportions of these youth whose employability was limited without being completely restricted (class B youth). In each of those regions over 30 percent of these youth (white males living in cities of 2,500 to 25,000 population) were classified as limited employables—class B. At the other extreme, three regions had less than 25 percent of their white male youth (both in cities of 2,500 to 25,000 and in all sizes of communities) in class B. These were the South Atlantic, East South Central, and West South Central regions. In only one of these regions, the East South Central, was the percentage of youth in class C large enough to account for at least some of the smallness of class B. If class C had not been unusually large in that region, it seems likely that class B would have been near the average for the United States, rather than low. The other regions fell between these two groups. Thus, even when the size of the community in which the youth resides is eliminated as a factor,

THE HEALTH STATUS OF NYA YOUTH

CHART 1

WHITE MALE YOUTH AGED 16-20, LIVING IN CITIES FROM 2,500 TO
25,000 POPULATION, BY "HEALTH STATUS AND EMPLOYABILITY
CLASSIFICATION", AND BY CENSUS REGION

NYA Health Examinations, United States, 1941



there were relatively more youth with limited employability (class B) in the northern and western regions than in the regions usually grouped together as constituting the South.

A word of caution should be given against the interpretation of the differences found in these classifications as absolute indications of whether one region's youth have "better health" than another. When it is realized, for example, that the region which had the second highest percentage of youth in class A also had the second highest percentage in class C, then it becomes clear that unqualified conclusions should be guarded against. Certainly it appears clear that the picture of the impact of health defects upon youth's employability shows differences in different census regions. Further, it seems safe to say that the East and West South Central and Rocky Mountain regions are "worse off" insofar as the percentage of youth who are unfit for employment is concerned. The data also indicate that certain regions have relatively low percentages of youth who are limited in the work they can do. It should be kept in mind, however, that the evaluations made by the examining physicians are the stuff of which these percentages are made, and those evaluations were made with the specific problem of employability in mind. Unfortunately, in spite of efforts to standardize the definition, there may have been some differences in the concepts of employability in the several regions.

TABLE 2.—Number and percent of white male youth, 16 to 20 years of age, living in cities of 2,500 to 25,000 population, with designated classification. NYA health examinations, United States

Census region	Health status and employability classification				Total number of youth
	Class A	Class B	Class C	All classifications	
Total, United States.....	70.9	26.6	2.5	100.0	8,304
New England.....	73.7	25.1	1.1	100.0	354
Middle Atlantic.....	67.3	31.7	1.1	100.0	379
East North Central.....	67.4	31.4	1.2	100.0	1,763
West North Central.....	70.0	28.9	1.1	100.0	1,376
South Atlantic.....	77.2	21.4	1.4	100.0	947
East South Central.....	63.8	24.6	11.6	100.0	439
West South Central.....	75.8	19.8	4.4	100.0	1,488
Rocky Mountain.....	68.1	28.9	3.0	100.0	789
Pacific.....	71.1	28.1	.8	100.0	769

Urbanization Differences

Examination of the data for white male youth 16 to 20 years of age in certain specific census regions shows there is a correlation between size of community and the proportion of youth whose

employability was classed as "partially limited" (class B), the percentage so classed increasing as the size of community increased. Thus in the South Atlantic region the percentage of the specified male youth in class B increased with the size of the community from 19 percent in rural areas to 38 percent in cities of 500,000 and over. In the Pacific region the rise was from 26 to 34 percent, and in the East North Central region, from 29 percent to 32 percent. This relationship was also true for other census regions and for all regions combined. For all regions combined the percentage of white males in class B was 25.5 for rural areas, 28.6 in communities of 2,500 to 25,000, 32.3 for cities 25,000 to 100,000, 34.2 for cities 100,000 to 500,000, and 39.9 for cities of 500,000 and over. Similar differences appeared for white females.

Whether the above differences between rural and urban communities in the relative numbers of youth who are limited in their employability reflect actual differences in the state of health of the youth is not certain. Every effort was made to have the same examination procedure and health status standards used by all the examining physicians. Nevertheless the examinations in rural and in urban communities were made by different physicians. Each community or locality, regardless of size, usually had a different examiner. Moreover, in the larger cities examinations were frequently made by examining teams composed of a general practitioner, a dentist, and one or more specialists, while in the rural areas examinations were more frequently made by one physician only. Therefore, the possibility of a difference in standards of the examination cannot be overlooked. It is known that rural physicians were sometimes less likely to recommend certain highly specialized medical services for the youth examined because they knew that those services were not available in the community. Similarly, there may have been differences in subjective standards of employability, the rural or small-community physician thinking in terms of occupations less exacting than, for example, employment as a crane operator or at some such highly mechanized work with stringent physical requirements. For these reasons it is uncertain whether a real difference in health level exists between rural and urban youth. In the judgment of the physicians in the respective communities, more city youth than country and small-town youth had health defects which limited the kind of work they could do but did not prevent them from working.

There seems to be no clear relationship between size of community of youth's residence and percentage of youth found to be unfit for NYA employment (class C), except among white youth

in the South. For the entire country, the rural white males did show a higher percent of youth in class C than was found in any of the other sized communities, and this percentage decreased with increasing size of community. However, this seeming correlation is partly the result of the relation between census region and size of community. The southern areas with the high percentage in class C tend to weight the smaller sized communities disproportionately. In addition, in the three southern regions the percentages of white male youth placed in class C varied inversely with the size of the community in which the youth lived. Except for these southern regions, no clear relationship between percent of youth in class C and size of community is discernible.

In each of the three southern regions, South Atlantic, East South Central, and West South Central, the relative number of white male youth placed in class C was highest for youth in rural communities, and decreased as size of community increased. This relationship held for white females but did not hold for Negro youth. It was seen most clearly in the East South Central region, where 12 percent of white rural males were in class C as compared with only 2.5 percent of white males in large cities. It is believed that this relationship is an effect of the prevalence of hookworms in these regions. Youth with severe infestations of hookworms were generally classified as temporarily unfit for work. Since the prevalence of hookworm infection was highest in the rural areas and decreased with increasing size of community, the percentage of youth placed in class C would be expected to show a similar variation. This explanation is consistent with the fact that the rural-urban variation did not hold for Negroes. As will be pointed out later (see p. 39) the prevalence of hookworm infection is relatively low among Negro youth.

Recommendations made by examiners

The examination form (see appendix B) enumerated a number of the specific kinds of medical or dental services that were expected to be most frequently needed by the youth. The examining physicians and dentists then indicated by checking the appropriate spaces which, if any, of these services they recommended for the particular youth examined. Space was provided for writing in additional recommendations. Thus, as final steps in the individual examination, the examiners recorded two kinds of data giving a summary picture of the health of the youth examined. They recorded the health status and employability classification already discussed, and indicated the

recommendations which they regarded as necessary to the correction of the health defects discovered. For example, if for a particular youth the examiner discovered diseased tonsils, decayed teeth, and hernia as the conditions which he felt required attention, he would check the three recommendations dental care, tonsillectomy, and hernia repair.

It was pointed out earlier that a difficulty in the way of tabulating the number of defects was in the lack of agreement as to what constituted a defect. The recommendations made by the examiners provide a more meaningful measure of the health needs of the group. In effect the examiners defined the various defects by stating whether or not in their opinion the conditions called for correction. It becomes possible, therefore, to tabulate the recommendations that were made for the youth and in doing this to have a measure of the extent of their defects. It is recognized that this procedure does not guarantee uniformity of meaning for the condition that called for a particular recommendation. One physician might recommend, say, tonsillectomy where another would not. But it does afford a means for measuring the extent of defects as determined by those conditions for which the examining physicians and dentists recommended correction.

Number of Recommendations

There were 166 recommendations per 100 youth examined. That number is based upon all of the youth, some examined by a physician only and others by physician(s) and dentist. If dentists had been available to make the dental examinations in all cases, the average number of recommendations would have been higher, since dentists are known to be better able to detect dental defects. Assuming for all youth examined the same frequency of dental care recommendations as found for the youth examined by a dentist, the number of recommendations so adjusted (both dental and nondental) was 185 for each 100 youth.

Youth with Recommendations

Recommendations were not confined to youth whose employability was limited. About one-third of the youth had health defects which limited their employability, but about nine-tenths of them had some defect for which the examiner recommended medical or dental care or correction. For 84 percent of all youth examined and 93 percent of those examined by a dentist, one or more recommendations were made. Thus, only about ten youth out of each hundred examined had no defect for which the examiner made a recom-

mentation. It seems reasonable to suppose that had the examinations all been as thorough as those which involved the services of a dentist, recommendations would have been made for 93 percent of the youth.

Relative Frequencies of Specific Recommendations

The most frequent recommendation was for dental care. Recommendations for dental care accounted for 46 percent of the 185 (adjusted) recommendations per 100 youth. (Even when all youth examined are considered, regardless of dentist participation in the examination, dental care made up 40 percent of all recommendations.) The next two most frequent recommendations were for eye refractions and tonsillectomies, each of which constituted about 11 percent of all recommendations. The three next most frequent recommendations; namely, additional diagnostic procedures, special diets, and study by specialists, each accounted for about 7 percent of the total. Thus these six recommendations accounted for about 90 percent of all recommendations made. The other 10 percent included circumcision, hookworm treatment, venereal disease treatment, other repetitive medical therapy, other surgery (major and minor), minor nonsurgical procedures, and recommendations for "treatment, type unspecified."

Some of the above-named statistical categories need explanation.⁶ Almost half of the "additional diagnostic procedures" group consisted of requests for rechecks of items included in the original examination or for tests which should have been included in that examination (urinalyses, blood-pressure readings, blood serologies, etc.). The only other diagnostic procedure recommended with relative frequency was chest X-ray, which was coded here only where that procedure was indicated as a result of tuberculin test, family history, exposure, or some factor other than physical findings on chest examination. The special diet recommended was high caloric in over half, and low caloric in about one-fifth of all such recommendations. The "study by a specialist" recommendation most frequently called for an ear, nose, and throat specialist (about one-fifth of all such recommendations), while specialists in eye, heart, skin, or female genital diseases, respectively, were each called for in about one-tenth of the cases where a specialist was indicated. About one-half of the "other repetitive medical therapy" recommendations called for treatment of skin diseases. The

recommendations for "other major surgery" were for appendectomies in about one-third of the cases, for hydrocele repair in about one-sixth, and for plastic repair in over one-sixth. Recommendations for "other minor surgery" were largely made up of requests for varicocelectomies, submucous resections, fittings of surgical appliances, and minor growth removals, each of these constituting about one-fourth of the group. "Minor nonsurgical procedures" recommended were vaccinations or inoculations in about three-fourths of the cases, with removal of ear cerumen (wax) the only other frequent recommendation in this group. The residual category, "recommendations for treatment, type unspecified," was made up of recommendations naming the disease or defect but not specifying which of several possible treatments was recommended. The most frequent defects with this recommendation were high and low blood pressures.

Table 3 shows the percentage distribution of all recommendations according to the nature of the specific recommendation. It also shows the number of times each specific recommendation was made per 100 youth examined. These same findings are presented graphically in charts 2 and 3. The frequency of each of the various recommendations will be discussed later in this paper in connection with the related defects.

TABLE 3.—Percentage distribution of specific recommendations, and the number of recommendations per 100 youth. NYA health examinations, United States

Specific recommendation	Percentage distribution of recommendations	Number of recommendations per 100 youth examined
All recommendations ¹	100.0	184.7
Dental care.....	45.7	84.5
Refraction.....	10.7	19.7
Tonsillectomy.....	10.5	19.4
Additional diagnostic procedures ²	7.5	13.8
Special diet ³	6.6	12.1
Study by a specialist ⁴	6.0	11.0
Minor nonsurgical procedures ²	3.0	5.5
Circumcision ⁵	1.8	3.3
Unspecified type of treatment ²	1.7	3.2
Other repetitive medical therapy ²	1.5	2.7
Posture correction exercise.....	1.2	2.3
Hookworm treatment.....	1.1	2.1
Venereal disease treatment.....	.9	1.7
Other minor surgery ².....	.6	1.2
Hernia repair.....	.5	1.0
Other major surgery ².....	.3	.5
Hemorrhoidectomy.....	.3	.5
Surgery of eye or adnexa.....	.1	.2
Mastoid operation.....	(⁶)	(⁶)
Malaria treatment.....	(⁶)	(⁶)
Radiation therapy.....	(⁶)	(⁶)

¹ The figure for number of dental care recommendations per 100 youth is based upon the findings for 60,127 youth examined by dentist. All other figures are based on 147,663 youth.

² See text above for contents of this category.

³ Based on both sexes. Calculated on the basis of male youth only, recommendations for circumcision made up 3.9 percent of all recommendations, and were made for 6.5 males per 100.

⁴ Less than 0.05.

⁶ While the various entries that were combined into these categories were not coded and punched separately, a hand tabulation was made of all the specific entries which went to make up these general groups for about 45,000 of the 150,000 records. This serves to indicate the composition of each category, although it does not, of course, make it possible for specific rates to be calculated for the precise conditions that were so grouped.

THE HEALTH STATUS OF NYA YOUTH

CHART 2

COMPOSITION OF RECOMMENDATIONS MADE FOR CORRECTION
OF HEALTH DEFECTS NOTED

NYA Health Examinations, United States, 1941

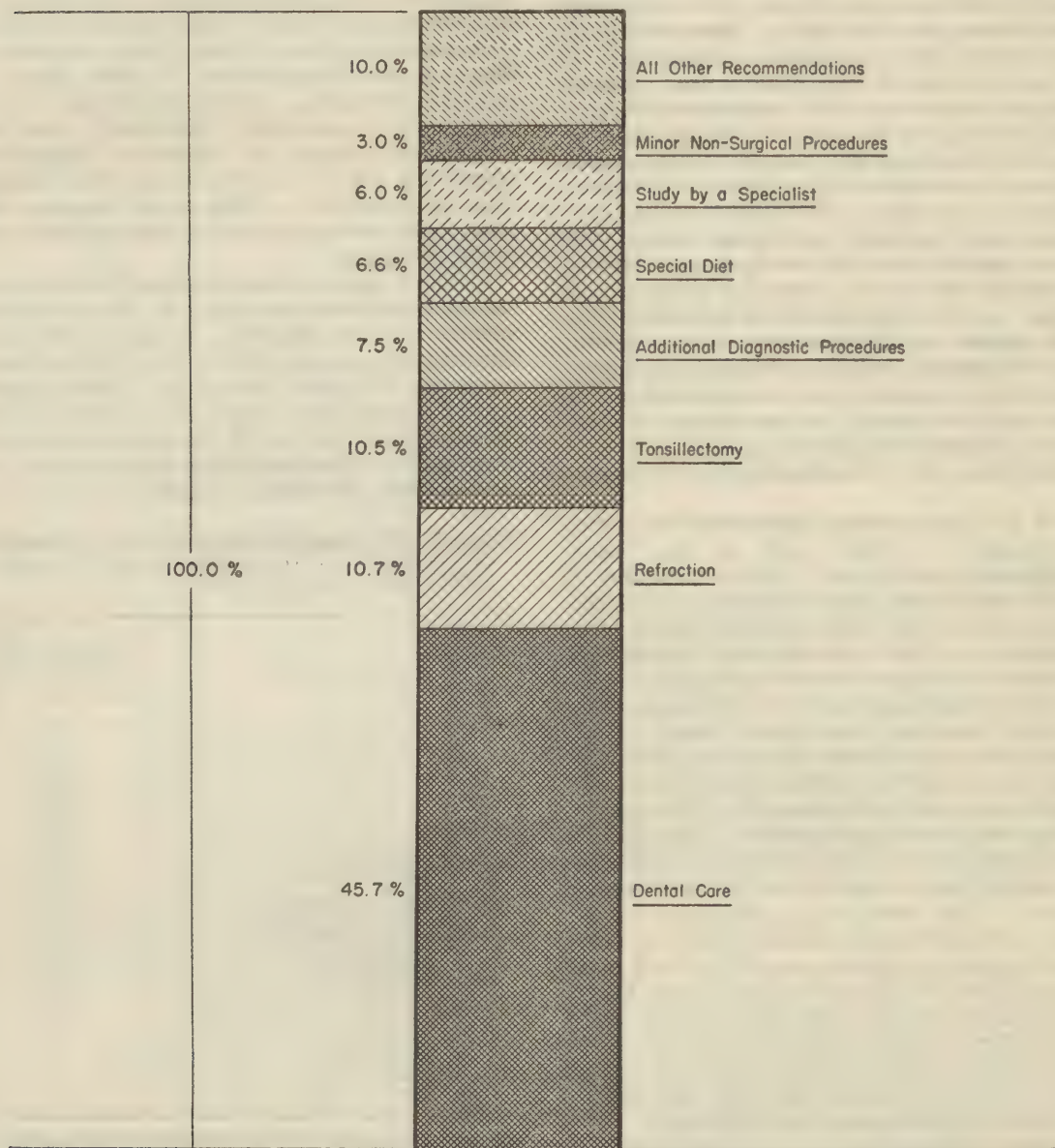


CHART 3

NUMBER OF RECOMMENDATIONS PER 100 YOUTH EXAMINED,
FOR SELECTED SPECIFIC RECOMMENDATIONS

NYA Health Examinations, United States, 1941

AMONG EVERY 100 YOUTH EXAMINED

85 *needed*
DENTAL
CARE20 *needed*
REFRACTIONS19 *needed*
TONSILLECTOMIES14 *needed*
ADDITIONAL
DIAGNOSTIC PROCEDURES12 *needed*
SPECIAL
DIETS11 *needed*
STUDY
BY A SPECIALISTEach figure represents
5 youth

Sex, Color, and Age Differentials in Recommendations Made

The recommendations made by the examiner have been used above in three ways to measure the general health level of NYA youth: (1) The percent of youth having one or more recommendations; (2) the total number of recommendations per 100 youth examined; and (3) the distribution of those recommendations among the various specific ones made. In discussing the variations by sex, color, and age, only the first two of these measures will be used. This is not to imply that the composition of the recommendations group does not shift with some or all of these factors. In fact, later in this paper, these variations will be considered. It will suffice here to point out that this pattern does shift sharply with respect to the relative importance of certain recommendations, but that in all groups the most frequent was for dental care. Moreover, in all groups, refractions, tonsillectomies, additional diagnostic procedures, special diets, and study by specialists each ranked near the top in relative numbers.

TABLE 4.—Percent of youth for whom recommendations were made, for 60,000 youth examined by physicians and dentists, and adjusted¹ number of recommendations per 100 total youth; separate by sex, color, and, for males, by age. NYA health examinations, United States

Sex, color, and age groups	Percent for whom one or more recommendations were made	Adjusted number of recommendations per 100 youth examined ¹
Total youth.....	93.3	184.7
Males.....	92.7	180.9
Females.....	94.0	188.7
White males.....	92.9	180.1
Negro males.....	91.6	184.9
White females.....	93.7	184.8
Negro females.....	95.1	204.8
Males aged 16 to 20.....	92.7	179.4
Males aged 21 to 24.....	92.6	187.0

¹ The adjusted number of recommendations per 100 youth listed here is the sum of the number of recommendations exclusive of ones for dental care made per 100 youth for all youth examined including youth not seen by a dentist (147,663), plus the number of dental care recommendations per 100 youth for those youth seen by a dentist.

Table 4 shows the variations by sex, color, and age in the percent of youth affected by recommendations and the number of recommendations made per 100 youth. The percentages are based only upon youth whose dental examination was made by a dentist, and the number of recommenda-

tions is adjusted so that dental care figures are based only on these same youth, in order to avoid the understatement of the need for dental care that would result from the use of all examinations.

While some differences appear in table 4 among the different sex, color, and age groups, these differences were slight. Moreover, the sex and color differences did not hold when urbanization was considered. (See table 5, later in this paper.) The only difference in number of recommendations that was found in all sizes of communities and in all census regions was that between males of the ages 16 to 20 and males 21 to 24. The older group consistently had a higher number of recommendations per 100 youth examined.

Rural-Urban Differentials in Recommendations Made

The entire 150,000 NYA youth examined were classified according to size of community in which the youth lived in order to compare the average number of recommendations per 100 youth. Definite and apparently consistent differences among the various rural-urban groups appeared upon preliminary examination. The youth in the rural areas had received fewer total recommendations than those in larger cities. Likewise, a smaller percentage of rural than of urban youth received one or more recommendations. However, dentists were involved in a much higher percentage of urban than of rural examinations, and youth whose oral examinations were made by dentists had more recommendations for dental care and so averaged more total recommendations. To determine whether any rural-urban differences exist in the quantity of medical care needed, it was necessary to eliminate the effect of varying proportions of dentist examinations among the several urbanization groups.

Table 5 shows an "average number of recommendations per 100 youth" obtained by using the findings of the 60,000 dentist examinations for the frequency of dental care recommendations and the findings of the entire 147,000 youth for all other recommendations. Thus, a theoretical average number of recommendations, corresponding to what might have resulted had dentists participated in all examinations, was obtained for youth in each sex and color group, and for the size of community of youth's residence. Since the data were found to vary by census region, similar averages were obtained for white males in each of five of the nine census regions.

TABLE 5.—Average number of recommendations made per 100 youth examined by physicians and dentists¹ in various sizes of communities, by designated sex, color, and selected census region groups. NYA health examinations, United States

Group of youth	Average number of recommendations ¹ per 100 youth—Population of community in which youth lived					
	Under 2,500	2,500 to 25,000	25,000 to 100,000	100,000 to 500,000	500,000 and over	Total
Total.....	187.8	184.6	175.8	186.7	186.9	184.7
Males.....	188.1	186.7	178.1	179.6	164.6	180.9
Females.....	187.4	181.9	173.6	192.9	205.6	188.7
White males.....	187.9	182.2	180.0	175.5	163.9	180.1
Negro males.....	187.1	215.6	166.8	198.0	167.1	184.9
White females.....	187.3	180.2	173.6	178.1	209.6	184.8
Negro females.....	185.3	202.1	173.3	237.2	201.1	204.8
White males in selected census regions:						
Middle Atlantic.....	226.7	240.5	243.8	162.4	² 153.4	172.3
East North Central.....	168.1	170.8	172.0	193.9	175.3	174.0
South Atlantic.....	205.0	190.6	210.6	201.5	159.3	201.3
West South Central.....	189.6	180.9	168.8	145.0	-----	179.5
Pacific.....	144.3	138.4	139.6	182.2	185.3	159.9

¹ The average numbers of recommendations shown here are composites of data for 60,000 youth examined by dentists, and for the total 147,663 youth examined (regardless of who made the dental examinations). The averages represent the sum of the number of recommendations exclusive of ones for dental care that were made per 100 total youth, and the number of dental care recommendations made per 100 youth examined by dentists.

² Low primarily because of exceptionally low number of dental care recommendations in New York City.

There was no consistent relationship between size of community and number of recommendations. For total male youth there appeared to be an inverse relationship between size of community and number of recommendations, but this was not true for Negro males nor for white or Negro females. The figures for separate census regions show such inconsistent variations as to indicate the absence of any real rural-urban differences in health needs as measured by total recommendations.

Regional Differentials in Recommendations Made

Table 6 shows for each census region the percentage of youth examined by both physicians and dentists, and found to need some medical or dental service. These percentages of youth are shown by sex and color. Table 7 shows for each census region the adjusted average number of total recommendations made per 100 youth for each sex-color group and for white males within a particular size of community, 2,500 to 25,000 population. It is thus possible to compare the various census regions as to the relative numbers of youth for whom recommendations were made and as to the relative quantity of recommendations made.

TABLE 6.—The percentage of youth who received one or more recommendations, among those examined by both physician and dentist. NYA health examinations, United States.

Census region	Percent of youth with one or more recommendations						
	Total	Males	Females	White males	Negro males	White females	Negro females
Total United States..	93.3	92.7	94.0	92.9	91.6	93.7	95.1
New England.....	95.4	95.1	95.7	95.0	¹ 96.5	95.4	98.4
Middle Atlantic.....	88.9	87.0	92.2	87.1	86.4	91.2	94.7
East North Central.....	94.8	94.7	95.0	95.1	92.5	94.9	95.6
West North Central.....	92.0	91.9	92.1	91.3	96.9	90.5	98.4
South Atlantic.....	92.6	94.0	89.8	95.6	81.9	91.4	86.5
East South Central.....	98.8	98.6	99.0	98.9	97.5	99.0	99.2
West South Central.....	93.2	92.3	95.4	92.1	94.1	95.9	89.5
Mountain.....	95.2	94.2	96.1	94.1	¹ 94.7	91.5	² 100.0
Pacific.....	95.3	93.7	96.3	93.4	¹ 96.3	96.3	96.3

¹ Based on less than 100 youth examined by a dentist.

² Based on less than 50 youth examined by a dentist.

TABLE 7.—The adjusted average number of recommendations per 100 youth examined in each census region, by sex, color, and urbanization groups

Census region	Number of recommendations per 100 youth in specified groups					
	Total white males	Total white females	In cities of 2,500 to 25,000 population		Total Negro males	Total Negro females
			White males	White females		
New England.....	168.3	168.4	139.0	158.9	176.3	190.1
Middle Atlantic.....	172.3	185.4	240.5	214.6	166.6	211.7
East North Central.....	174.0	183.6	170.7	165.9	159.7	175.6
West North Central.....	173.4	180.3	178.2	185.9	246.7	299.8
South Atlantic.....	201.3	175.6	190.6	174.8	167.5	181.9
East South Central.....	214.7	207.4	239.6	219.6	217.8	232.8
West South Central.....	179.5	185.8	181.0	197.9	184.0	195.1
Rocky Mountain.....	186.3	199.0	198.3	191.4	239.5	250.0
Pacific.....	162.1	183.9	133.4	164.4	174.4	196.2

It is clear that there were differences among the regions in the average numbers of recommendations made and lesser differences in the proportions of youth affected by these recommendations. These differences were not eliminated by holding sex, color, or urbanization constant and so were not produced by varying sex, color, and rural-urban composition of the populations in the separate regions. The differences, however, were not the same in all of these groups.

It is believed that the variations in average number of recommendations made in the separate census regions are made up of differences in the frequencies of specific recommendations, not all

of which vary in the same way. Regional variations in the frequencies of specific recommendations will be discussed along with specific physical findings.

In general, the average number of recommendations made was relatively high in the Southern and Rocky Mountain regions. This was largely true of males and of females, of white and of Negro youth. Exceptions to this general picture were certain urbanization groups in the Middle Atlantic region and the Negro youth in the West West North Central region, which had high rates. In connection with these high Negro rates, it is worth noting that a very large proportion (over two-thirds) of all the Negro youth examined in the West North Central region were from Missouri, the southernmost State in that region.

Specified Urgent Recommendations Made by the Examiner

The examining physicians were requested to designate, on the health examination record, which of the recommendations made for each youth examined were of an urgent nature. These "urgent recommendations" were, of course, included in the total number of recommendations already discussed, but because they were considered so important, they merit separate consideration.

Approximately 1 youth in every 7 examined was in urgent need of some kind of medical or dental treatment or service. The percentage of youth with 1 or more urgent recommendations was 13 for both males and females among white youth, 15 percent for Negro males, and 20 percent for Negro females. Some youth received more than 1 urgent recommendation; there were 16 urgent recom-

mendations per 100 youth, although only 14 percent of the youth examined had 1 or more such urgent recommendations.

The most frequent urgent recommendation made was for dental care. Of all youth examined (whether or not by a dentist), 9 percent were indicated as urgently needing dental care. It is safe to assume that this figure would be much higher for youth examined by a dentist. For about 3 percent of all youth examined, refraction was urgently recommended. Tonsillectomies were urgently needed for 2 percent of the youth; hookworm treatment and study by a specialist, each were urgently needed by about half of 1 percent. In the three census regions which make up the South, the rate of urgent recommendations for treatment of hookworms varied between 2 and 11 percent of all youth examined.

In general, the urgent recommendations made varied by sex, color, size of community, and census region, much the same as did the total recommendations made. The ratio of urgent to total recommendations differed widely with the sort of treatment being recommended. Thus there was one urgent recommendation to every five total recommendations for venereal disease treatment, and over one urgent recommendation to every five hookworm treatment recommendations. For refractions, however, the ratio was 1 to 7.7; for hernia repair, 1 to 8.3; and for special diet recommendations it was 1 to 33. Thus the recommendations for treatment of less serious conditions tended to be urgent in a smaller proportion of the cases.

Table 7 in the appendix shows the number of urgent recommendations made, separate by type of service requested and by sex, color, and age groups.

III. SPECIFIC PHYSICAL FINDINGS AND CORRESPONDING RECOMMENDATIONS

Dental and other oral defects

Since examinations by dentists were regarded as giving a more dependable indication of the actual extent of dental defects than the oral examinations by physicians, the following discussion concerns itself only with some 60,000 youth who were examined by dentists.

The section of the examination form devoted to the oral examination called for two categories of information. (See appendix B.) Space was provided for recording, first, the condition of each tooth as to previous or present dental caries (tooth decay), and second, information concerning the general mouth condition, including conditions such as pyrohea and dental calculus (tartar). In addition, the examining dentist indicated whether the youth needed dental care. Thus, six different measures of dental and oral health are available: (1) Untreated carious teeth, that is, teeth with present unfilled cavities regardless of fillings in the same teeth; (2) filled teeth, used here as meaning teeth which have undergone previous attacks of caries and which have been repaired or crowned or replaced; (3) extracted teeth, teeth once present in the mouth but now missing, presumably because of past attacks of caries; (4) decayed, missing, or filled teeth, a summation which measures the total caries experience; (5) other oral defects and diseases; and (6) need of dental care of any kind, as indicated by the dentist's recommendation.

Dental Defects—Age, Sex, and Color Differences

Just as the recommendation most frequently made was for dental care, the defect recorded most frequently was dental caries, or tooth decay. Eighty-three percent of all the youth examined by dentists had one or more untreated carious teeth. This percentage is almost exactly the same for males and females and for white and Negro youth.

Obviously, the proportion of youth with one or more carious teeth is not a very exact measure of the actual numbers of decayed teeth to be found among NYA youth, since this proportion does not take into account whether the youth has 1 such tooth or 10 of them. Since the data included information as to the condition of each one of the 32 teeth, it is possible to use a more precise

measure of dental condition, namely, the average number of carious teeth per 100 youth examined. There were 472 carious teeth per 100 youth examined. Expressed in another way, these NYA youth had, on the average, between 4 and 5 teeth in some stage of decay at the time of the examination.

White males had a higher average number of carious teeth than Negro males (492 compared with 448), but the average for white females was lower than that for Negro females (452 and 472). White males had relatively more carious teeth than white females, but Negro males had less than Negro females. These rather inconsistent variations arise from the fact that the number of teeth that are carious at a given time is a function of the number that have ever become carious and of the number that have been extracted or filled. Thus the variation is affected by the amount of dental care which has been received. However, the average number of carious teeth per 100 youth does measure the present extent of dental decay. To understand the meaning of the differences found, it is necessary to investigate the prevalence of extracted and of filled teeth. Table 8 presents, by sex, color, and age group (for males only), the percent of the youth examined who had one or more carious teeth and the averages per 100 youth examined, for carious teeth, extracted teeth, and filled teeth.

From table 8 it appears that in over half of the youth examined each youth had at least one extracted tooth and at least one filled tooth. Relatively more white than Negro youth had extracted teeth and the same is true of filled teeth. Likewise, there were more extracted and more filled teeth per 100 among white than among Negro youth. Moreover, larger percentages of females than males had extracted teeth and repaired teeth; females also averaged more extracted and more repaired teeth per person than males. The apparent inconsistency brought out above, then, is explained by the fact that, while white females had relatively more teeth that had ever been carious as compared with white males, a higher proportion of past extractions and fillings left them with relatively fewer teeth carious at the time of examination. Among the Negro youth, less dental care had been received and so the female Negro youth were higher than the

males in carious teeth as well as in extracted and repaired teeth.

TABLE 8.—*The percent of youth who had specified dental conditions, and the average number of teeth in the specified condition per 100 youth examined by dentists, by sex, color, and for males—age groups. NYA health examinations, United States*

Sex and color	Percent of youth examined having any number of (one or more)—			Average number of teeth in specified condition per 100 youth examined			
	Carious teeth	Ex-tracted teeth	Filled teeth	Carious teeth	Ex-tracted teeth	Filled teeth	DMF ¹ teeth
Total youth.....	83.0	56.3	51.7	471.9	155.3	291.1	918.0
White youth.....	83.1	58.2	56.0	474.2	164.1	327.9	965.8
Negro youth.....	82.9	47.4	30.2	460.6	111.4	107.2	678.6
Male youth.....	82.8	53.6	45.9	485.7	145.0	239.5	869.5
Female youth.....	83.3	59.6	58.5	455.5	167.6	352.6	974.6
White male youth.....	83.2	55.4	49.2	492.1	153.0	265.6	909.7
16-20 years of age.....	83.7	53.2	47.5	489.4	138.5	245.2	872.1
21-24 years of age.....	81.5	63.4	55.2	502.3	205.9	340.1	1,047.5
Negro male youth.....	80.5	43.5	26.5	447.9	97.9	85.7	631.8
16-20 years of age.....	79.9	40.0	25.4	443.5	84.0	80.4	608.3
21-24 years of age.....	82.5	56.8	30.6	464.3	149.2	105.2	718.6
White female youth.....	82.9	61.8	64.5	451.6	178.1	406.5	1,036.5
Negro female youth.....	85.0	50.9	33.5	472.0	123.5	126.5	720.5

¹Decayed, missing, and filled, as explained in the text. The figures here given differ very slightly from the sum of the preceding 3 columns. This discrepancy (in no case more than 1.5 teeth per 100 youth) arises from the fact that the number of DMF teeth was derived independently and is based on all youth examined by a dentist, while youth for whom size of community of youth's residence was unknown were excluded from the calculations of number of carious teeth.

There is a better index of dental decay, one which is not affected by the amount of dental care received. The number obtained by counting the numbers of teeth that are decayed, missing, or filled has been used⁷ as a measure of total caries experience, past and present. Klein and Palmer have called this measure "the number of DMF teeth" and that terminology will be used here. The last column in table 8 shows the number of DMF teeth per 100 youth for each sex, color and age group. There were 918 DMF teeth per 100 NYA youth examined. Thus, on the average, each youth had nine teeth that had at some time been attacked by caries.

Comparison of the number of DMF teeth for white and Negro youth shows that the white youth had a much higher average number of teeth that were then, or had once been, carious than Negro

youth. This was true among both males and females and was so great (average number of DMF teeth over 40 percent higher for white youth) as to constitute a clear-cut difference in caries experience. It must be remembered that this does not mean that there are fewer dental defects now present among Negro youth—in fact, the percent having carious teeth and the average number of carious teeth per 100 youth was found to be about the same for both white and Negro youth. The present extent of the defect, however, was high for both white and colored youth because a larger proportion of the teeth that had become carious among Negro youth have not been repaired. If the same amount of dental care had been received by Negro and white youth, proportionate to their needs, there would have been a relatively lower prevalence of remaining caries among the Negro youth.

Two other differences in the prevalence of tooth defects appear in table 8. The average number of teeth that were then, or had been, carious (DMF teeth) was higher for females than for males and, since dental caries accumulate with age, the number of DMF teeth was necessarily higher for male youth 21 to 24 years old than for ones between the ages of 16 and 20. It is significant to note that the average number of DMF teeth was about 20 percent greater in the older age group. That female youth have undergone more caries experience than male youth of the same chronological age has been pointed out in other studies. The explanation for this sex differential has been shown⁸ to be that permanent teeth erupt earlier in females and so the teeth of females at a given age have been exposed to the risk of caries for more years than those of male youth of the same chronological age.

Comparison of Dental Defects Among NYA and Other Youth

There are some data available on the dental health of certain groups of the population with ages approximating those of NYA youth. It therefore becomes possible to compare the NYA youth with other groups. Table 9 shows certain relevant information on dental defects among three different groups: NYA youth in this study; school youth, as studied in high school and college; and young adult male workers in certain occupations. Since the number of DMF teeth increases regularly with age and since the various groups of

⁷ Klein, Henry and Palmer, C. E.: Dental Caries in American Indian Children. Public Health Bulletin No. 239. U. S. Government Printing Office (1937).

See also Collins, Selwyn D.: The Health of the School Child. Public Health Bulletin No. 200. U. S. Government Printing Office (1931). And Stoughton, A. L. and Meaker, V. T.: Sex Differences in the Prevalence of Dental Caries. Public Health Reports. Vol. 47, p. 26. (1932).

⁸ Klein, Henry, and Palmer, C. E.: Studies on dental caries, VII. Sex differences in dental caries experience of elementary school children. Public Health Reports 53: 1685 (1938).

See also Stoughton, A. L., and Meaker, V. T.: (op. cit., see footnote 7), where this same explanation is put forth tentatively.

youth shown in Table 9 differ somewhat in age range and mean ages, any comparison of the respective numbers of DMF teeth is necessarily somewhat rough. Consequently the age differences must be taken into account in comparing these data.

TABLE 9.—*A comparison of the prevalence and extent of dental caries among NYA youth, high-school and college youth, and young male workers: Data from selected studies. NYA health examinations, United States*

BOTH SEXES COMBINED

Group of youth studied	Age range	Mean age (years)	Number of youth	Percent with caries	Cari-ous teeth per 100 youth	DMF teeth per 100 youth
NYA youth, total United States	16-24	19.1	60,030	83.0	471.9	918.0
High-school children:						
Hagerstown, Md. ¹	13-19	15.7	1,841	74.1	285.8	708.0
Hagerstown, Md. ¹	18-19	18.2	180	73.9	277.2	881.1
College students, Stanford University ²	17-25	19.3	2,700	70.0	180.9	-----
Metropolitan Life Insurance Co., employees ⁴	17-24	-----	8,770	-----	-----	1,425.3

MALE YOUTH

NYA youth, total United States	16-24	19.0	32,611	82.8	485.7	869.5
High-school children:						
Hagerstown, Md. ¹	13-19	15.8	855	80.2	323.0	722.3
Hagerstown, Md. ¹	18-19	18.3	101	78.2	282.2	905.9
Metropolitan Life Insurance Co., employees ⁴	17-24	-----	1,441	-----	-----	1,423.9
Metal-mine workers, Utah ⁵	15-24	-----	83	-----	363.0	1,071.0
Coal mine workers, Utah ⁵	15-24	-----	70	-----	389.0	977.0
Smelter workers, Utah ⁵	15-24	-----	113	-----	414.0	1,150.0
NYA youth, total United States	21-24	22.1	6,994	81.7	496.8	1,000.1

¹ Data from Klein and Palmer, Studies on Dental Caries IX, *PHR*: 55, p. 1258 (1940).

² Data from Stanford Men Students' Health Service, quoted in Diehl and Shepard, *The Health of College Students*. (1939) Amer. Council on Educ., Wash., D. C.

³ Approximately.

⁴ Data from Hollander and Dunning. A Study by Age and Sex of the Incidence of Dental Caries in over 12,000 persons. *J. Dent. Res.*, 18:43 (1939).

⁵ Data from Brinton et al., Dental Status of Adult Male Mine and Smelter Workers. *PHR*: 57, p. 218 (1942).

If allowances are made for the variations in the ages of the different youth, no striking differences appear in the total caries experience, as measured in terms of DMF teeth, but there is a marked difference in the relative amounts of present caries. The NYA youth had more than twice as many untreated carious teeth per 100 persons as the college students, and nearly three-fourths more than the high-school youth. They were also appreciably higher than the male workers in mines and smelters. This excess in unrepaired carious teeth with no corresponding excess of DMF teeth reflects a lesser amount of dental care received by NYA youth. That is probably a result of their

relatively low economic status. Earlier studies have likewise found greater need for dental care among persons in low income groups.⁹

A comparison of male NYA youth between the ages of 21 and 24 with the selectees of these ages examined under the Selective Service System would afford a measure of the differences between these NYA youth and the general population. Unfortunately a number of circumstances combine to make such a comparison difficult. The Selective Service data so far available are based upon an older group than these NYA youth. Moreover, the dental requirements of the Selective Service have been changed, and were never such that the NYA examinations would yield exactly comparable data. It has been possible, however, by a special tabulation to determine how many of the NYA males 21 to 24 years of age would fail to meet the original Selective Service requirements¹⁰ on the assumption that all teeth present among these NYA youth were "serviceable." Since some of the carious teeth present in these youth needed extraction and since extractions in some cases would have resulted in a youth's disqualification, the number of NYA youth estimated to have insufficient teeth to meet Selective Service requirements is an understatement. In spite of this, the tabulation revealed that 4.2 percent of all male youth between the ages of 21 and 24 who were examined by a dentist had too few teeth to meet the original dental requirements of Selective Service. For white NYA youth this figure was 4.7 percent, and for Negro youth it was 1.4 percent. These figures are considerably lower than those for Selectees. A report of the National Headquarters of the Selective Service System showed that about 9 percent of the males examined by the local examiners had an insufficient number of serviceable teeth.¹¹ If a correction be made for the additional number later rejected for this reason at the induction centers, it would seem that a total of about 11 percent of the persons examined were or would have been rejected for this reason.¹² A special investigation into the dental status of some 600 males between the ages of 21 and 35 showed an even higher percentage (15 percent) whose teeth failed to meet

⁹ Klein, Henry and Palmer, Carroll E.: Medical Evaluation of Nutritional Status. X. Susceptibility to Dental Caries, and Family Income. *Milbank Memorial Fund Quart.* Vol. XX No. 2, April 1942. Klein and Palmer show that the prevalence of untreated caries is higher in low-income groups solely as a result of less past treatment. The susceptibility to caries is independent of income class.

¹⁰ Briefly, the principal requirement was that the person have at least three pairs (upper and lower) of serviceable incisor teeth and at least three pairs of serviceable masticating teeth. See Selective Service Regulations, Vol. Six. Physical Standards, MR 1-9, 21-32, Section VII.

¹¹ Analysis of Reports of Physical Examinations. Medical Statistics Bulletin No. 1; National Headquarters, Selective Service System (Nov-1941). The exact percentage is not available since this bulletin does not show how many of the 1.8 percent who had partial dentures were rejected for that reason.

¹² The correction for additional rejections was based on the figures for total selectees rejected for dental reasons by local boards and by induction centers. Medical Statistics Bulletin No. 1, Selective Service System.

the requirements of Selective Service standards.¹³ That the percentage of NYA youth with teeth below these standards should be much lower than the above figures is to be expected in view of their lower mean age and the lack of any adjustment for carious teeth that should be extracted.

Comparison of Dental Defects by Rural-Urban Groups

It might be argued, *a priori*, that because of the relatively greater numbers of dentists in cities, there would be an inverse relationship between the prevalence of untreated dental caries and the size of community of the youth's residence. The data do not bear out such an assumption. Table 10 shows by size of community for all youth examined by a dentist, and for white male youth so examined, the average number of carious teeth per 100 youth and the percent of youth affected. These data reveal no significant differences in prevalence of untreated caries among youth living in rural areas, in towns from 2,500 to 25,000 population and in cities from 25,000 to 100,000 population. For youth in cities of 100,000 to 500,000 the average number of carious teeth is somewhat lower (although the percent of youth affected remains the same) and in all cities of 500,000 and over both the percent of youth affected and the average number of carious teeth are decidedly lower. But this lower prevalence of caries is not characteristic of the NYA youth in all cities of 500,000 and over. In fact, the low rate was found to result entirely from a remarkably low rate for cities in the Middle Atlantic Region. When the measures were computed for all cities of 500,000 and over, exclusive of those in the Middle Atlantic Region, they were much the same as for communities of other sizes. It is known that youth from New York City made up a very large part of the Middle Atlantic youth in cities of 500,000 and over, and it is believed that local factors in this city operate to make the NYA youth there atypical of NYA youth in general. Better provision for their needed dental care results in a rate of untreated caries that is not so much a result of size of city as of the dental care program of the particular city of residence. For these reasons Table 10 presents figures for cities of 500,000 and over both inclusive of and exclusive of the Middle Atlantic Region. On the basis of youth exclusive of this Middle Atlantic large city group, it appears that untreated dental caries prevail to about the same extent among NYA youth of various sized communities. Certainly

areas with relatively more dentists could attain a more favorable prevalence than areas with fewer dentists, but—except where positive action is taken as among New York City youth—it appears that the mere presence of dentists in the area does not insure the utilization of dental services.

TABLE 10.—*A comparison of the prevalence and extent of untreated dental caries among NYA youth living in communities of different sizes. NYA health examinations, United States*

	Population of community in which youth lived					
	Rural under 2,500	2,500 to 25,000	25,000 to 100,000	100,000 to 500,000	500,000 and over	500,000 and over, except Middle Atlantic Region
Average number of carious teeth per 100 total youth.....	501.1	504.5	494.2	467.2	(409.4)	490.0
Percent of total youth with at least one carious tooth.....	84.7	85.2	84.8	85.2	(77.2)	86.0
Average number of carious teeth per 100 white male youth.....	523.8	527.6	531.4	479.5	(375.3)	544.0
Percent of white male youth with at least one carious tooth.....	85.5	86.6	86.2	85.8	(70.6)	87.2

TABLE 11.—*A comparison of the prevalence and extent of dental caries among NYA youth in different geographic areas (census regions, all examinations by dentists). NYA health examinations, United States*

Census region	Total youth			White male youth		
	Percent with at least one carious tooth	Average number of carious teeth per 100 youth	Average number of DMFT teeth per 100 youth	Percent with at least one carious tooth	Average number of carious teeth per 100 youth	Average number of DMFT teeth per 100 youth
New England.....	87.2	533.7	1,095.1	88.6	563.2	1,068.2
(Middle Atlantic).....	(71.5)	(371.7)	978.4	(69.9)	(373.3)	977.9
Middle Atlantic, except cities 500,000 and over.....	90.0	577.1	.....	92.0	608.4	.....
East North Central.....	88.5	545.7	1,031.2	90.0	600.4	1,043.2
West North Central.....	81.6	432.4	918.2	82.2	451.0	950.7
South Atlantic.....	85.7	493.7	793.9	88.9	544.2	853.4
East South Central.....	86.1	513.1	708.1	83.7	483.5	597.5
West South Central.....	76.2	365.8	521.7	76.4	362.0	494.8
Rocky Mountain.....	80.1	387.1	543.7	78.2	353.8	511.0
Pacific.....	83.6	452.4	955.4	82.5	444.2	918.9

¹ Decayed, missing or filled, as defined in the text.

Comparison of Dental Defects by Census Regions

Variations in prevalence of untreated caries among the various census regions, if real variations occur, might be the result of either (or both) of the following factors: Actual differences in the extent to which youth in the different

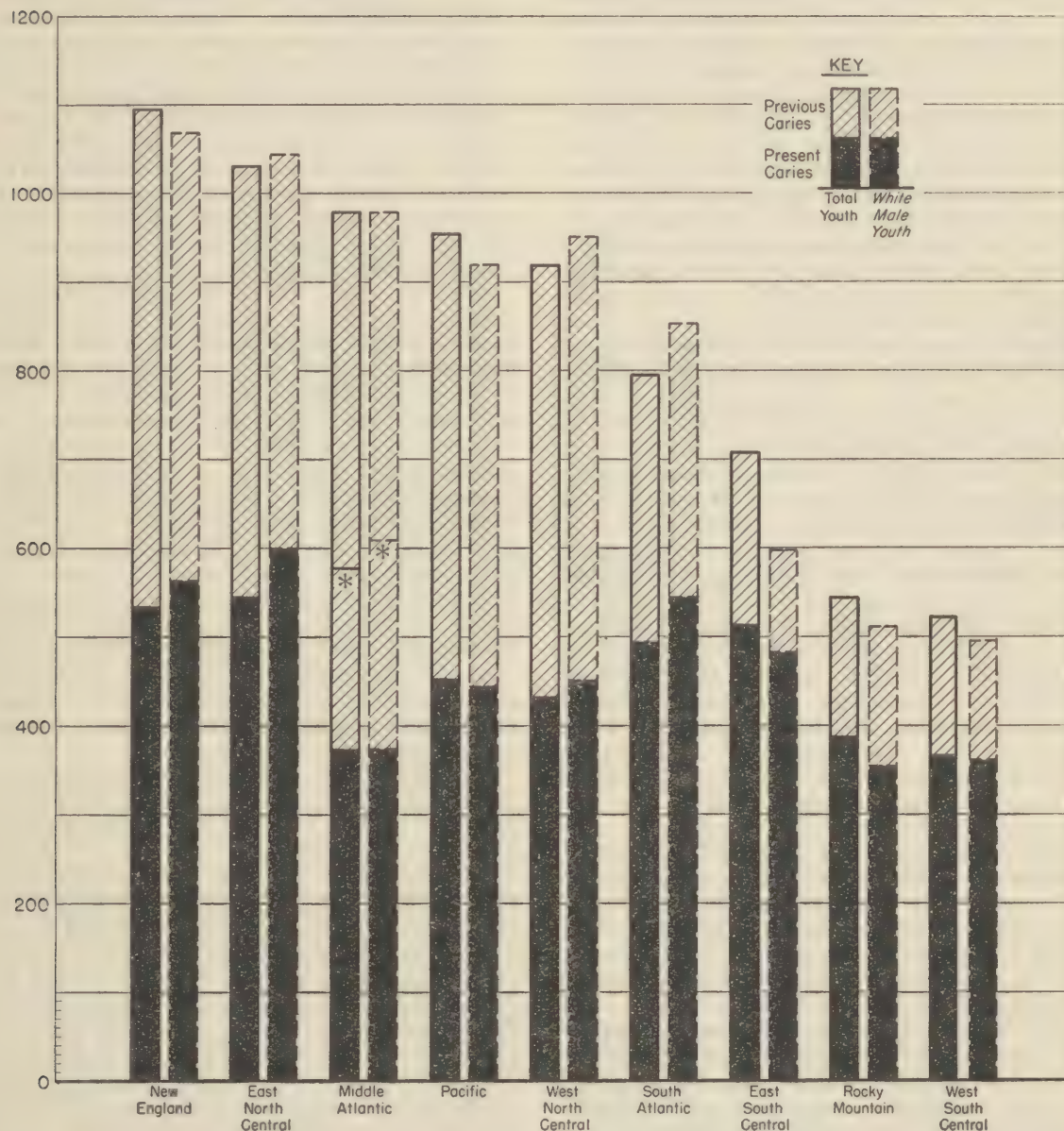
¹³ Klein, Henry: The Dental Status and Dental Needs of Young Adult Males, Rejectable or Acceptable for Military Service, According to Selective Service Requirements. Public Health Reports: 56:1369-1387.

CHART 4

THE AVERAGE NUMBER OF DMF TEETH PER 100 TOTAL YOUTH AND
PER 100 WHITE MALE YOUTH EXAMINED BY A DENTIST IN EACH
CENSUS REGION, BY WHETHER PREVIOUSLY OR PRESENTLY CARIOUS

NYA Health Examinations, United States, 1941

Average Number of
DMF Teeth per 100



* If cities of over 500,000 are excluded from the Middle Atlantic Region, the average numbers of carious teeth would be 577 and 608

regions are affected by caries; differences in the proportion of dental caries that remain untreated (i. e., in certain regions relatively more of the carious teeth become filled teeth). The number of DMF teeth, however, should vary by region only if there is a difference in the rate at which youth are affected by caries, regardless of whether or not care has been received. Table 11 shows by census region the percent of youth affected by present dental caries and the average numbers of carious teeth and of DMF teeth per 100 youth.

There are definite differences among the census regions in the prevalence of untreated caries recorded by dentists during these examinations. Attention has already been called to the Middle Atlantic region, where the prevalence of untreated caries was unusually low due to the low rate for cities of 500,000 and over. Table 11 and chart 4 show that not only was this region fairly high in untreated caries prevalence if the cases from these large cities be excluded, but the entire region was relatively high in average number of DMF teeth.

The youth examined in the West South Central and in the Rocky Mountain regions showed a low average number of untreated carious teeth per 100 youth and likewise fewer DMF teeth. These same two regions were the lowest ones (except for the atypical Middle Atlantic region, including large cities) in percent of youth with untreated dental caries and in average number of untreated carious teeth per 100 youth examined. The five regions that were highest in total caries experience, past and present, were New England, East North Central, Middle Atlantic (excluding cities of 500,000 or more), Pacific, and West North Central. The first three of the five were also highest in percent of youth with present caries and in average number of untreated carious teeth per 100 youth examined. The other two census regions, South Atlantic and East South Central, occupy an intermediate position with respect to the two "low prevalence" and five "high prevalence" regions when total youth are considered. When the DMF rate is based on white male youth only, the East South Central region is nearly as low as the West South Central and Rocky Mountain regions, while the South Atlantic is more nearly the same as the five higher regions.

Whether the recorded regional differences represent real regional differences is not known. Since all of these examinations were made by dentists, it is felt that variations in standards of the examiners will not explain the wide differences in findings, and that a relatively low rate of caries prevalence and incidence exists in the West

South Central and Rocky Mountain regions. There is, however, a possibility that differences in thoroughness or in exacting nature of standards of the examining dentists in the several regions were responsible for at least part of the variations.

Other Oral Defects

The oral examination obtained information as to the presence of dental caries, filled teeth, etc.; it also revealed the presence of a number of other mouth defects. Among the defects specifically looked for were tartar of medium or marked degree (slight tartar was not coded as a defect), gingivitis (inflammation of the gums), and pyorrhea (pus expressible from about the teeth). In addition, space was provided for recording other oral defects such as malocclusion, Vincents angina ("trench mouth"), other abnormal tooth conditions (tooth stained, tooth chipped or crooked tooth, mottled enamel, etc.), and other mouth abnormalities.

Over one-third of all the youth examined by dentists had one or more oral defect other than carious teeth. Some youth had more than one such defect. Oral defects were found in 36 out of every 100 NYA youth examined by dentists, and there were 49 such defects among the 36 youth. These defects occurred more frequently among males than females and more frequently among Negro than white youth. Gingivitis, the most common of these defects, was reported for 24 youth out of every 100 and was of moderate or severe degree in 5 of those 24 cases. Tartar of moderate or severe degree was reported for nearly 13 youth out of every 100. The more serious condition, pyorrhea, was found in 4.4 percent of the youth examined. Among Negro males, pyorrhea was reported for 8.3 percent; among white males 21 to 24 years old, 7.2 percent suffered from this condition.

The percentages of youth reported as having various specific oral defects, along with the actual numbers reported, are shown by sex and color in table 13 of appendix C.

The frequency of other mouth defects showed some variations among the various census regions. One census region (Rocky Mountain) reported other mouth defects for 46 percent of its youth as compared with 36 percent for the total United States and 31 percent for the lowest region (East North Central). These variations do not correspond with differences found for dental caries. The five regions with the highest frequencies of other oral defects included the West South Central and Rocky Mountain, the two lowest regions in prevalence of both total caries experience and untreated carious teeth. The specific abnormal

conditions that were unusually high in these five regions were: in the Rocky Mountain region, pyorrhea (16 percent, compared with only 4 percent for the total United States) and gingivitis; In the West North Central and Pacific regions, tartar; in the New England region, other abnormal tooth conditions; and in the West South Central region, other abnormal tooth conditions and pyorrhea.

Recommendations for Dental Care

It was pointed out in the discussion of total recommendations that dental care was called for more frequently than any other corrective service or treatment. The frequency of this recommendation depended largely upon whether or not a dentist participated in the examination. Table 12 shows for each sex and color group the percentage of youth examined by dentists who were found to need dental care along with the corresponding percentages for youth examined only by a physician.

TABLE 12.—The percentages of youth recorded as needing dental care among youth examined by both physicians and dentists, by sex and color. NYA health survey, United States

Sex and color group	Percentage needing dental care		
	Youth examined by a dentist	Youth not examined by a dentist	All examinations
All youth.....	84.5	52.8	65.7
Male youth.....	83.8	53.7	66.7
Female youth.....	85.2	51.9	64.7
White youth.....	84.3	50.7	64.6
Negro youth.....	85.2	61.9	70.7
White males.....	84.1	52.3	66.3
Negro males.....	82.2	60.4	68.6
White females.....	84.6	49.2	62.8
Negro females.....	87.8	63.3	72.6

No significant differences in need for dental care were observed among the different sex-color groups. The marked differences that appear between youth examined by dentists and youth examined by physicians are indicative of a much more precise determination, by dentists, of the existing dental needs.

An examination of the percentages of youth needing dental care in communities of various sizes showed no relationship between need for dental care and size of city. Aside from cities of 500,000 and over—, which group showed an extremely low percentage because of the atypical situation in New York City—there was almost no variation. For all youth examined by dentists the percentages needing dental care were 86.5 in rural areas, 85.4 in towns and small cities of

2,500 to 25,000 population, 86.6 in cities of 25,000 to 100,000 population, and 85.8 in cities having a population over 100,000 but less than 500,000. The only possible exception to the above lack of relationship was among Negro females, where there may have been slightly higher percentages needing dental care in larger cities.

The percentages of youth needing dental care did vary among the youth examined by dentists in the several census regions. Table 13 shows these percentages for total youth, white males, and white females. The Middle Atlantic region is shown both including and excluding the cities of 500,000 and more, and the rate is comparable with that for the other regions if those cities are excluded. The number of dental care recommendations was lowest in the West South Central (where, it will be recalled, the prevalence of untreated dental caries was lowest) and in the South Atlantic regions. The East South Central region reported the largest percentage of youth in need of dental care.

TABLE 13.—The percentages of youth who were found to need dental care in each census region, by sex and color; based on youth examined by a dentist. NYA health examinations, United States

Census region	Percent of youth examined by dentist who were found to need dental care				
	Total	White males	Negro males	White females	Negro females
New England.....	88.5	89.2	92.9	87.7	88.8
(Middle Atlantic).....	(73.2)	(70.5)	(73.4)	(74.9)	(82.1)
Middle Atlantic (excluding cities 500,000+).....	89.0	90.0	89.9	85.8	91.3
East North Central.....	88.2	89.4	84.4	87.6	89.4
West North Central.....	85.8	85.6	94.3	82.6	95.0
South Atlantic.....	81.0	85.4	65.9	77.4	76.7
East South Central.....	94.3	93.9	95.1	94.3	95.8
West South Central.....	80.3	79.5	77.7	82.8	78.1
Rocky Mountain.....	85.7	84.2	80.3	87.6	81.5
Pacific.....	88.4	86.0	92.7	89.3	90.9

Eye defects

Visual Acuity

Snellen chart tests of vision were a part of every health examination. The words "vision" and "visual acuity" are used here to refer to the results of that test. All youth were tested without glasses. In most cases, youth with defective vision were also tested with some form of visual aid.¹⁴ These data were tabulated for each eye separately and also cross-tabulated.¹⁵ The figures presented in this paper are based on unassisted vision, and indicate the extent of visual

¹⁴ Assistance was by the youth's own glasses, by trial lenses, or by looking through a pinhole punched in a card.

¹⁵ The better eye in case both were equal was taken to be the right eye. The Snellen chart reading recorded was the designation of the smallest line that could be read completely.

impairment among NYA youth. In many cases the youth already had glasses; the prevalence of youth with uncorrected visual defects is discussed later in this section in terms of "Recommendations for Refraction."

TABLE 14.—Percent of youth having specified Snellen chart readings in each eye by sex and race. NYA health examinations, United States

Snellen chart reading (unassisted)	Total youth	White		Negro	
		Male	Female	Male	Female
BETTER EYE ¹					
Total known youth	146,562	63,070	57,235	12,429	13,828
All readings.....	100.0	100.0	100.0	100.0	100.0
20/20.....	75.3	78.7	70.4	80.8	74.8
20/25-20/40.....	16.9	14.3	19.8	14.5	19.4
20/50-20/70.....	3.6	3.2	4.4	2.4	3.3
20/100.....	1.7	1.5	2.1	1.0	1.0
20/200.....	2.4	2.2	3.2	1.2	1.4
Reading unknown but vision abnormal.....	.1	.1	.1	.1	.1
Blind.....	(²)	(²)	(²)		
POORER EYE					
Total known youth	146,224	62,892	57,128	12,396	13,808
All readings.....	100.0	100.0	100.0	100.0	100.0
20/20.....	63.9	67.1	59.1	70.7	63.3
20/25-20/40.....	22.5	19.7	25.1	20.5	26.4
20/50-20/70.....	5.6	5.2	6.4	3.9	5.4
20/100.....	2.8	2.7	3.4	1.6	1.8
20/200.....	4.6	4.5	5.6	2.5	2.6
Reading unknown but vision abnormal.....	.2	.2	.2	.2	.2
Blind.....	.4	.6	.2	.6	.3

¹ The right eye was taken as the better if both were equal.

² Less than 0.05.

A summary of the more important visual acuity findings is presented in table 14. Sixty-four per-

cent of the youth had normal unassisted vision in both eyes, that is, vision of 20/20 or better; 75 percent had normal vision in at least one eye. In 23 percent, vision was worse than 20/20 in at least one eye but no worse than 20/40 in the poorer eye, so that 86 percent had vision no worse than 20/40 in the poorer eye. Including the 0.4 percent who were blind in one eye, 7.8 percent had vision of 20/100 or worse in at least one eye and 5.0 percent tested 20/200 or worse. Considering the better eye, 7.7 percent had vision of 20/50 or worse; 5.9 percent had 20/70 or worse; and 4.1 percent tested 20/100 or worse.

A measure of the correlation of visual acuity in the two eyes is presented for white male youth aged 16 to 20 in table 15. It will be noted that almost 69 percent of these youth had vision of 20/20 in both eyes. Almost 94 percent (93.6) had vision of 20/40 or better in their better eye and 87.8 percent had vision of 20/40 or better in their poorer eye as well. On the other hand, about 4.8 percent of the youth had vision of 20/70 or worse in both eyes; 3.3 percent had vision of 20/100 or worse; and for 1.9 percent the readings for both eyes were 20/200 or worse. Only three youth (less than 0.01 percent) in this age group were reported blind in both eyes.

It will be noted from table 15 that when vision in the poorer eye is below normal, the better eye frequently has the same degree of defect. Thus, for visual acuity of 20/40 or worse in the poorer eye more youth had vision as defective or almost so in the better eye than had normal vision in that eye. But those youth who are blind in one eye are about as likely to have normal vision in their "good" eye as youth with both eyes effective.

TABLE 15.—Percentage of the 49,908 NYA white male youth, aged 16-20, tested by Snellen charts and found to have the indicated readings for each eye when vision was unassisted. NYA health examinations, United States

Snellen chart reading, better eye	Snellen chart reading, poorer eye									
	All readings	20/20	20/25	20/30	20/40	20/50	20/70	20/100	20/200+	Unknown but abnormal
All readings.....	100.0	68.6	6.0	9.2	4.0	2.4	2.5	2.6	4.0	0.17
20/20.....	79.9	68.6	3.1	4.3	1.0	.6	.5	.5	.8	.06
20/25.....	4.4		2.9	.8	.3	.1	.1	.1	.1	.01
20/30.....	6.7			4.1	1.4	.4	.3	.2	.2	.01
20/40.....	2.6				1.3	.6	.3	.2	.2	.01
20/50.....	1.5					.7	.4	.2	.2	(¹)
20/70.....	1.5						.9	.4	.2	.01
20/100.....	1.4							1.0	.4	.01
20/200+.....	1.9								1.9	.01
Unknown but abnormal.....	.1									.05
Blind.....	(¹)									(¹)

¹ Less than .01 of 1 percent.

One might ask, "Given a particular Snellen chart reading for the better eye (or for the poorer eye), what is the probability of finding each one of the possible readings in the other eye?" Such

questions as this can be answered for NYA youth aged 16 to 20 by consulting the data of table 15. Thus from the row entitled "All readings," one can obtain the relative number of youth having any

specific reading for their poorer eye and by following the particular reading from this row through in the column below it, one may determine the fractional part of the youth with that reading who have the same or better vision in their better eye. For example, given the vision of 20/40 in the poorer eye, the "All readings" entry in that column show that 4 youth in every 100 had a reading of 20/40 in their poorer eye. Of these youth, one-fourth had normal vision (20/20) in their better eye; one-twelfth had vision of 20/25; one-third had vision of 20/30; and almost one-third had a rating of 20/40. Thus the probability of having 20/20 vision in the other eye is, in this case, about one in four and so on.

Since vision of 20/40 is often used as a point beyond which vision is definitely considered handicapped, the relative number of youth with vision of 20/50 or worse is used here to compare age, sex, and color groups; variation from 20/20 vision is also used.

Female youth had defective vision, in some degree, slightly more frequently than males. About 41 percent of the white females had defective vision (i. e., worse than 20/20) in at least one eye, compared to 33 percent of the white males (see table 14). For Negroes the figures were approximately 37 percent of the females and 29 percent of the males. Table 16 shows the relative number of youth in each of these sex and color groups with vision of 20/50 or worse. It will be noted there, also, that female youth were more often defective in both the better and poorer eye, but this was not as true for Negro youth as for white.

TABLE 16.—Percent of youth having vision of 20/50 or worse in the better and the poorer eye for white and Negro youth, by age groups for males, and by sex. NYA health examinations, United States

Age and sex group	Better eye			Poorer eye		
	Total	White	Negro	Total	White	Negro
Males 16-20.....	6.0	6.4	4.1	11.4	12.1	7.8
Males 21-24.....	9.0	9.6	6.4	15.8	16.7	11.4
Male youth.....	6.6	7.0	4.6	12.3	13.0	8.6
Female youth.....	8.9	9.7	5.7	14.6	15.6	10.1
All groups.....	7.7	8.3	5.2	13.4	14.3	9.4

Less Negro youth, then, had some degree of visual defect (i. e., reading worse than 20/20) by the Snellen chart test than white youth. For male and female youth combined the percentages of youth with any better eye defects were 25.3 for white and 22.4 for Negro, and with poorer eye defects, 36.7 for white and 33.2 for Negro. But among youth with visual acuity of 20/50 or worse, the figures for white and Negro youth were 8.3 as compared to 5.2 percent for the better eye, and

14.3 as compared to 9.4 percent for the poorer eye. This would seem to indicate that when Negro youth have visual defects they tend to be less severe than those occurring among white youth.

Though the two age groups of male youth studied here are separated by a difference in median age of only 3.8 years, the relative number of youth with vision of 20/50 or worse was 6.0 compared to 9.0 percent for the better eye and 11.4 compared to 15.8 for the poorer eye for youth aged 16 to 20 and 21 to 24, respectively. It will be noted that the difference between the two age groups is more pronounced in the poorer eye than in the better eye for both races.

The distribution of this difference in acuity between the age groups is given in detail for white male youth in table 17. It is shown to have existed among youth with all different degrees of defect. The relative numbers of youth in the two age groups with some degree of defect were 20.1 as compared to 25.9 percent for the better eye, and 31.4 compared to 38.6 percent for the poorer eye.

TABLE 17.—Percent of white male youth having specified Snellen chart readings for two age groups and for the better and the poorer eye. NYA health examinations, United States

Snellen chart reading	Age groups			
	16-20	21-24	16-20	21-24
	Better eye		Poorer eye	
Number of youth examined ¹	50,041	13,029	49,099	12,983
All readings.....	100.0	100.0	100.0	100.0
20/20.....	79.9	74.1	68.6	61.4
20/25.....	4.4	4.5	6.0	5.8
20/30.....	6.7	8.5	9.2	10.7
20/40.....	2.6	3.3	4.0	5.2
20/50.....	1.5	1.9	2.4	2.7
20/70.....	1.5	2.1	2.5	3.3
20/100.....	1.4	2.1	2.6	3.5
20/200+.....	1.9	3.4	4.0	6.3
Blind.....	(²)	(²)	.5	.9
Unknown but abnormal.....	.1	.1	.2	.2

¹ Excluded from the figures used here are youth whose Snellen chart readings were unknown. The number of youth with unknown reading was higher for the poorer eye than for the better eye.

² Only 3 cases.

Visual acuity varied considerably from region to region. Since at least part of the variation might be attributed to the presence of a larger number of eye specialists among the examiners in some regions, the comparison of regional variation has been made in terms of youth with visual acuity worse than 20/40. It was thought there would be less variation among examiners in determining the relatively severe impairments than in measuring slight variations from normal. These comparisons are made in table 18 for both the better and the poorer eye. The northern and

western regions had a greater percentage of youth with defective visual acuity than southern regions. Vision among Negroes was less frequently defective than among white youth in every instance except in New England, where the number with poorer eye vision of 20/50 or worse was almost the same for Negro and white, 18.1 compared to 17.7.

TABLE 18.—Percent of youth having vision of 20/50 or worse in the better and the poorer eye, for white and Negro youth by census region. NYA health examinations, United States

Census region	Better eye		Poorer eye	
	White	Negro	White	Negro
Total United States.....	8.3	5.2	14.3	9.4
New England.....	11.2	10.5	17.7	18.1
Middle Atlantic.....	17.5	13.5	26.9	20.5
East North Central.....	10.1	6.5	17.4	11.8
West North Central.....	8.5	4.2	14.8	8.4
South Atlantic.....	5.1	4.3	10.1	8.6
East South Central.....	3.9	1.5	8.5	3.7
West South Central.....	3.4	1.7	7.2	3.7
Rocky Mountain.....	9.1	6.6	14.5	11.5
Pacific.....	10.1	5.6	16.0	9.9

Recommendations were made by the examiner that the youth have a refraction for glasses in approximately 20 percent of the youth examined. These recommendations were either to correct a present improper fitting or to secure their first glasses. White youth were in slightly greater need of such fittings than Negro youth. More females needed glasses than males. The percentages are 17.6 for white males compared to 22.5 for white females, and 15.9 for Negro males compared to 21.3 for Negro females.

The relative number of recommendations for refraction differed between the two male age groups. For white males this was the difference between 16.8 percent for youth aged 16 to 20 and 20.6 percent for youth aged 21 to 24. Negro youth likewise differed for these two age groups by 15.2 percent compared to 18.4 percent.

Youth in larger urban centers were recommended for refractions more frequently¹⁶ than those living in smaller places, the rate increasing for the total United States from 16.8 percent for rural communities to 24.2 percent in cities of 500,000 and over. In southern regions the figures tended to be lower than in the North and showed less rural-urban difference in number of youth needing refractions. The different regions are compared in table 19.

¹⁶ It must be remembered that at least part of the recorded rural-urban variation in visual requirements may be due to differences in the number of eye specialists available in the respective areas.

TABLE 19.—Relative number of youth receiving recommendations for refractions, by size of community of youth's residence, in each census region. NYA health examinations, United States

Census region	Under 2,500	2,500 to 25,000	25,000 to 100,000	100,000 to 500,000	500,000 and over
Total United States.....	16.8	19.0	19.5	22.0	24.2
New England.....	14.6	14.4	24.0	23.5	26.7
Middle Atlantic.....	25.0	26.2	31.1	22.0	22.0
East North Central.....	19.3	20.4	19.8	24.4	22.0
West North Central.....	16.8	20.0	18.4	24.3	27.1
South Atlantic.....	17.5	21.4	22.9	20.7	20.0
East South Central.....	15.4	16.8	19.1	23.6	23.6
West South Central.....	15.5	14.3	13.8	16.0	16.0
Rocky Mountain.....	20.9	23.7	27.5	30.9	30.9
Pacific.....	15.0	15.5	13.7	21.0	27.3

Defective Color Vision

Color vision impairment is recognized as important because of the limitations it places on the affected individuals in certain occupations and in traffic signal recognition. Not only the fact of impairment but the degree of impairment is of importance in a study of color perception.

Two types of color vision tests were used by examining physicians, either the matching of yarns according to colors (Holmgren test) or the reading of Ishihara plates. The Ishihara test is the more exacting. It is composed of a series of plates on which are dots of various colors arranged into patterns that will be discernible to the normal eye but not to one with defective color vision. The Ishihara test was given to 31.3 percent of the youth, the Holmgren yarn test to 63.3 percent, and 5.4 percent were given either both tests or some other test not listed for specific tabulation.

By the yarn test 1.2 percent of the youth had defective color vision, and by the Ishihara test 3.2 percent had this abnormality, with 1.0 percent classified as markedly abnormal.

Imperfections of the color sense may be acquired through disease, injury, or drugs, or they may be present at birth by heredity. Hereditary color blindness is said to be the more common cause. More than four times as many males as females are hereditarily color blind.¹⁷ This is due to the manner of its inheritance, it being transmitted to the male through the female who is herself not usually affected.¹⁸ Since a racial difference also occurs, the figures for each sex will be discussed separately for white and Negro youth.

By the Ishihara test, 5.2 percent of the white males had some degree of impairment compared

¹⁷ Collins, George L. Color Blindness. Pub. Health Bull. No. 92. U. S. Public Health Service, 1918.

¹⁸ Conklin, Edwin G. Heredity and Environment. Princeton Univ. Press, 1929, p. 191.

to 1.2 percent of the females, or a ratio of about 4 males to every female. For those markedly abnormal by this test, the proportions were 1.7 percent for males and 0.3 percent for females. The Holmgren yarn test, on the other hand, showed 1.5 percent of the white males abnormal as compared to 0.2 percent of the females, and 0.4 percent of the males were markedly abnormal but less than 0.1 percent of the females.

The Ishihara test showed only 3.5 percent of the Negro males and 1.4 percent of the Negro females to have abnormal color vision. Only 1.0 percent of the males and 0.2 percent of the females were markedly color blind by this test. The results of the Holmgren yarn test among Negro youth were found to differ considerably from the findings for white youth, but most of this difference was limited to the West North Central region. Exclusive of that region, 2.1 percent of the Negro males and 0.9 percent of the females were color blind; only 0.5 percent of the males and 0.2 percent of the females were markedly abnormal.

In the West North Central region 11.7 percent of the Negro males and 14.8 percent of the females were reported as abnormal. Since these figures are out of line with all other findings, it is highly probable that this variation was due to ignorance of color names rather than lack of ability to discern color differences. In the yarn test youth might have been erroneously required to name colors rather than match various shades.

Diseases of the Eye

The most frequent disease of the eye, blepharitis, or inflammation of the eyelids, occurred in 1.4 percent of the white youth and 0.7 percent of the Negroes. This defect is often of more importance as a symptom than as an actual impairment. Strabismus, or squint, was present in some degree in 1.4 percent of the white youth and 0.8 percent of the Negroes. An early diagnosis of this defect is of importance in the possible saving of the sight of the deviating eye. Conjunctivitis in some form (inflammation of the membrane covering the eyeball and of the lining of the eyelid) was reported in 0.8 percent of the white youth and 0.5 percent of the Negroes. The more serious trachoma and pterygium, diseases which tend, unless checked, to cause blindness, were reported for 0.1 percent and 0.3 percent, respectively, of all youth examined. Eye defects and diseases other than the above were reported among 1.5 percent of the white youth and 2.3 percent of the Negro youth. A table presenting these facts in greater detail will be found in appendix C.

The relative number of youth with diseases of the eye varied from 4.3 percent in the East South Central region to 7.1 percent in the Pacific region.

The Northern and the Western regions were higher than the Southern, except for New England where only 4.1 percent had these defects.

Eye surgery was recommended for about 0.3 percent of the males, but only 0.2 percent of the females, for both Negro and white youth.

A hand tabulation of the youth recommended for study by a specialist showed about 1.1 percent of all youth required an eye specialist.

Ear, nose, and throat defects

Hearing

Auditory acuity of NYA youth was recorded for each ear separately in the following manner. Twenty feet was regarded as the distance at which a normal conversational voice should be audible. Deviations from normal were recorded as fractions with 20 as the denominator and the actual distance at which the examiner's voice was understood as the numerator. It is not assumed that such a method yields accurate quantitative results. The normal conversational voice of one examiner may be more audible than that of another. In coding, therefore, no distinctions were made between the various entries that were above 17/20, all such entries being coded 20/20. Thus "20/20" was used for hearing of 18/20 and 19/20 as well as recordings of extra-acuity, such as 25/20. Similarly, 5/20 here indicates all degrees of hearing below 7/20, except deaf; 10/20 includes values from 8/20 through 12/20; and 15/20 includes values from 13/20 through 17/20.

These hearing tests indicated that 98.7 percent of the youth could hear a conversational voice at least 18 feet with their better ear and 97.2 percent could hear that well with their poorer ear. These data would not measure slight degrees of impairment in hearing because of the rough nature of the test given. It is probably safe to conclude that ratings as low as 10/20 indicate some degree of impairment and that ratings of 5/20 denote definitely impaired hearing. Using these limits, 0.9 percent of the youth had some impairment (10/20) in at least one ear, and 0.4 percent had some impairment in both ears. Ratings of 5/20 or worse in at least one ear were recorded for 0.4 percent of the youth; only 0.1 percent had hearing so defective in both ears. Two youths in every 1,000 (0.2 percent) were deaf in one ear only; and one per 1,000 was deaf in both ears.

The relative number of male youth having auditory impairment increased slightly with advancing age. Hearing defects occurred so seldom that sex and race differences are not meaningful. No region had more than 4.1 percent of the youth with impaired hearing.

Condition of Ear Drums, and Presence of Cerumen

Of the 143,080 youth for whom both ear drums were examined, 94.4 percent were normal. Defects of the ear drum were classified as to degree or extent of defect considering the progressive stages as reddened, dull, retracted, perforated, and absent. The presence of any of these stages does not necessarily indicate any impairment of hearing. A reddened or dull drum usually indicates some stage of infection. "Retracted" indicates that a previous infection has caused a scar to form thus causing a change in the shape of the drum. "Drum perforated" and "drum absent" are self-explanatory terms. Persons having these latter conditions are thought to be more subject to infections of the inner ear. The relative number of youth having each of the above conditions is shown in table 20.

TABLE 20—Percentage of youth having specified condition of the ear drums. NYA health examinations, United States

Condition of drum	Better ear	Poorer ear ¹
Total known youth.....	143,548	143,080
All conditions.....	100.0	100.0
Normal.....	95.1	94.4
Absent.....	.1	.1
Perforated.....	.7	.9
Retracted.....	1.7	1.9
Dull.....	2.3	2.5
Abnormal, except above (including reddened, etc.)	.1	.2

¹ If both ears were of equal auditory acuity, the left ear was designated as "poorer."

Age, sex, and race differences were not sufficiently large to deserve mention. Regions varied in relative number of youth with defects of the drum of the poorer ear from 3.2 percent in the East South Central to 8.9 percent in the Rocky Mountain region, and from 2.5 to 7.4 percent for the better ear.¹⁹ In general, lower percentages of drum abnormalities were recorded in the Southern than in the Northern regions.

Ear cerumen (or wax), filling the external canals, was recorded for 4.5 percent of all youth examined. The percentage with wax varied among the census regions from 2.3 in the East South Central to 8.6 in the New England region.

Nose and Accessory Sinuses

Almost 1 youth in 10 had some defect of the nose or connecting sinuses. There were 11.5 defects for every 100 youth examined, some youth having more than one such defect. Since the classification of defects used here includes coryza

(the common "cold in the head"), the percentage having defects might be very high solely because of a high prevalence of head colds. This is not the case as is evident from the fact that coryza was reported for only 0.7 percent of the youth.

Chronic sinus infection was reported for 3.3 percent of the youth; 2.8 percent were classed as slight infections, and 0.5 percent as moderate or severe. The relative number of older male youth with slight infections was higher than the number of younger males, but the difference was small (2.8 percent for the 16 to 20 age group and 3.4 percent for 21 to 24 years). No consistent variation with sex was evident. A slight racial difference was apparent, 3.4 percent of the white youth having chronic sinus infection as compared to 2.4 percent of the Negroes. Except for the New England region, which reported 0.8 percent of the white youth infected, chronic sinus infection was lowest in the South and highest in the North and West. Among white youth, the South Atlantic region reported 2.0 percent infection and the Rocky Mountain region 5.5 percent. It must be remembered that mild cases of chronic sinus infection would not always be detected by routine physical examinations. The small differences noted are given here because they are consistent in the data and seem logical.²⁰ A few cases (less than 0.1 percent) of acute sinus infection were reported.

The second most frequent nasal defect tabulated was deviated septum. While slight deviations are common and of little importance, those tabulated here were severe enough that the physician wrote in the defect on the youth's examination record, as it was not among those printed for checking. A marked difference was observed in the relative frequency of deviated septum among white and Negro youth, the rate among Negroes being 0.7 percent as compared to 3.0 percent for white youth. A substantial sex difference was present among white youth, the rates being 3.8 percent for males and 2.2 for females. Negro youth showed no significant difference between males and females in the prevalence of deviated septum. The rates among white males tended to increase slightly with advancing age, being 3.6 percent for 16 to 20 years and 4.6 percent for 21 to 24 years of age.

Perforated septum was recorded for 0.1 percent of the youth. Among male youth the percentage varied from 0.1 for 16 to 20 years to 0.3 for 21 to 24 years of age. This difference between the two age groups was found in every census

¹⁹ The better ear was taken to be the ear with the better hearing. Where both ears were equal the right was designated as "better."

²⁰ Diehl and Shepard in their report to the American Youth Commission on the health of college students (*ibid.*) found 19.4 percent of the 4,679 college students examined in 34 colleges had deviated septum, 13.4 percent had chronic sinus infection, and 2.7 percent had nasal spurs or polyps.

region. Perforated septum was recorded relatively twice as often among white youth as among Negroes.

The presence of nasal polypi was noted in 0.5 percent of all youth. This defect was almost twice as common among Negroes (0.9 percent) as among white youth (0.5 percent); this difference between white and Negro youth was greater in the South than in the North. Allergic rhinitis, or hay fever, was recorded for 0.8 percent of all youth, there being no particular difference with respect to age, sex, or race. Because of the nature and seasonality of this disease, many cases would be unrecorded. The recorded cases were less frequent in the South than in the North and West. Thus, allergic rhinitis was recorded for 0.3 percent of the youth in the East South Central and for 1.7 percent in the Rocky Mountain region.

Other abnormalities of the nose, including epistaxis (nose bleed), inflamed mucous membranes, post-nasal drip, etc., were recorded for 3.4 percent of the youth.

Tonsils

An evaluation of the data on prevalence of diseased tonsils, and their meaning in a program of rehabilitation is made difficult by lack of specific information as to the extent of impairment and the complex question of when tonsils should be removed. It may be assumed that infected tonsils are often related to infections in adjacent tissues such as of the ear, nose, sinuses, and other parts of the throat. There is evidence²¹ that tonsillectomy reduces the susceptibility of children to diphtheria, infections of the middle ear, and possibly other diseases. However, Forsythe²² could find no outstanding difference in the health of university students with and without their tonsils removed. Regrowth of tonsils is known to occur only in cases of incomplete removal. Physicians at one time considered partial removal as sufficient but it is now generally agreed that complete removal should be done in cases where an operation is indicated. But conditions governing the decision to operate involve factors of age, general health, and extent of infection, and the decision is further complicated by lack of complete information as to possible later effects of the operation.

In coding defective tonsils those recorded on the examination form as both diseased and partially

removed were regarded as diseased. If the physician entered the condition as hypertrophied or enlarged, this was coded as diseased in those cases in which he recommended a tonsillectomy. Physicians differ considerably in their judgment as to what constitutes diseased tonsils. The present data are offered as representing a composite of the judgments of a large number of individual physicians.

Tonsils have been classified according to whether they were normal, diseased, completely removed, or partially removed. But the relative number of youth having diseased tonsils in any group is necessarily affected by the number of tonsillectomies that have been performed in that group. When comparing one group with another this must be kept in mind.

In terms of the definition given above, diseased tonsils occurred in 22.8 percent of the 145,913 youth with known tonsil condition. The percentages decreased somewhat with age, at least partially due to the effect of more tonsillectomies in the older-age group. No sex difference was evident but the percentage was 22.1 for white youth and 25.9 for Negroes. This difference is at least partially due to more frequent removals among the white.

TABLE 21.—Relative number of youth with specified condition of tonsils, separate by race. NYA health examinations, United States

Condition of tonsils	Percent of youth having the tonsillar condition indicated	
	White	Negro
Total known youth.....	119,783	26,130
All conditions.....	100.0	100.0
Normal.....	47.9	56.7
Diseased.....	22.1	25.9
Completely removed.....	26.2	14.7
Partially removed.....	3.8	2.7

Rural-urban differences are shown in table 22. The small number with partially removed tonsils are combined with completely removed. It must be remembered that operating facilities are more accessible in large cities. The data are presented by color for youth in each urbanization group. It will be noted from the table that the prevalence of diseased tonsils among white youth increases progressively with decrease in size of the community of the youth's residence; also that the relative number of all youth with previous tonsillar operations is progressively lower as the size of the city decreases. It is likewise true that the number of youth with normal tonsils is somewhat larger in

²¹ Doull, James A. A Note on the Relationships of Tonsillectomy to the Occurrence of Scarlet Fever and Diphtheria. Public Health Reports August 1, 1924, pp. 1833-1839.

²² Forsythe, Warren E. The Health Record of University Students as Related to Tonsillectomy. Public Health Reports, March 9, 1928, pp. 560-563.

cities under 100,000 population but quite low in those urban centers over 500,000. Among Negroes, only in cities of over 500,000 population, where the number of tonsillectomies was highest, did the relative number of these youth with diseased tonsils drop noticeably.

TABLE 22.—Percent of youth having specified condition of tonsils, according to size of community in which the youth lived, separate by color. NYA health examinations, United States

Condition of tonsils	Total youth	Rural under 2,500	2,500 to 25,000	25,000 to 100,000	100,000 to 500,000	500,000 and over
Total, white youth.....	119,783	46,771	19,199	16,508	21,766	15,539
All conditions.....	100.0	100.0	100.0	100.0	100.0	100.0
Normal.....	47.9	54.2	49.3	51.0	43.0	34.0
Diseased.....	22.1	27.1	24.2	21.7	16.6	13.5
Removed ¹	30.0	18.7	26.5	27.3	40.4	52.5
Total Negro youth.....	26,130	5,948	2,393	3,194	5,987	8,608
All conditions.....	100.0	100.0	100.0	100.0	100.0	100.0
Normal.....	56.7	67.7	62.0	65.9	46.7	51.1
Diseased.....	25.9	28.0	30.5	24.2	32.2	19.5
Removed ¹	17.4	4.3	7.5	9.9	21.1	29.4

¹ Includes partially removed.

TABLE 23.—Percent of youth in each census region having diseased tonsils and removed tonsils, for communities of under 2,500 population and for cities of 100,000 population and over. NYA health examinations, United States

Region	White				Negro			
	Under 2,500		100,000 and over		Under 2,500		100,000 and over	
	Diseased	Removed	Diseased	Removed	Diseased	Removed	Diseased	Removed
Total, United States.....	27.1	18.7	15.3	45.5	28.0	4.3	24.7	26.0
New England.....	9.9	37.5	7.3	50.6	(1)	(1)	9.4	40.9
Middle Atlantic.....	31.1	30.9	5.7	61.5	(1)	(1)	13.5	39.6
East North Central.....	23.9	19.5	19.9	40.6	26.6	14.8	22.4	25.2
West North Central.....	24.9	21.9	15.2	38.6	16.4	3.5	52.5	22.1
South Atlantic.....	28.5	16.7	17.5	45.1	31.6	5.1	16.5	20.6
East South Central.....	30.4	10.6	16.4	33.5	27.0	2.3	41.0	17.3
West South Central.....	32.1	12.6	25.3	25.5	29.7	1.9	36.3	14.5
Rocky Mountain.....	27.8	25.0	16.7	52.7	(1)	(1)	(1)	(1)
Pacific.....	17.3	39.0	17.1	50.0	16.0	28.0	27.1	37.0

¹ Too few cases on which to base a percent.

Although the general rural-urban pattern given above was present in every region, the regional variation was in some cases extreme. The relative number of youth with diseased and with removed tonsils in each region is given separately for rural areas and for cities over 100,000 in table 23. It will be noted that among Negroes in some regions relatively more urban youth had diseased tonsils than Negroes in rural areas. It must be remembered that at least a part of the variation evident here is due to differences in opinion of the

examining physicians as to what constitutes diseased tonsils. Relatively more removed tonsils were recorded in the northern regions than in the South and, as would be expected, rural areas showed fewer past tonsillectomies than the larger cities. Removed tonsils were much less frequent among Negro youth than among white, both in rural areas and in larger places.

Pharynx

Although the examining physician was asked to specify the condition of the pharynx, it was found impractical to tabulate the various impairments listed. A tabulation was made, however, as to whether the pharynx was normal or abnormal, and 5.8 percent of the youth were discovered to have some pharynx abnormality. Entries here included abnormal condition of the adenoids, inflamed or infected pharynx, and so forth.

Recommendations for ENT Defects

It will be recalled that a considerable number of youth were found to have excessive ear wax (cerumen). About one-fourth of the recommendations for minor nonsurgical procedure were for ear wax removal. This was thus recommended for about 1.4 percent of all youth examined.

Mastoid operations were recommended for only 43 youth in 100,000 (0.043 percent). Submucous resections of the nose made up about one-fifth of the recommendations for "Other minor surgery"; approximately 0.2 percent of the youth examined needed this operation.

Tonsillectomy was recommended for about 19 percent of all youth examined. The rate was only slightly higher for Negro youth (18.8 percent for white; 22.1 percent for Negro). White males and females received this recommendation at about the same rate, 19.1 and 18.4 percent, but Negro males were a little lower than females, 20.9 compared to 23.2 percent. This operation was recommended considerably more frequently as the size of community decreased, varying from 11.8 percent for all youth in cities of 500,000 and over, to 23.5 percent in communities of under 2,500 population.

When the recommendation rate for tonsillectomies is based only on youth known to have tonsils (i. e., total youth minus youth whose tonsils had been partially or completely removed), the race and urbanization differences were less marked. No appreciable difference is present between white and Negro youth, about 27 percent of all youth with tonsils being recommended for tonsillectomy. The corrected rate for white males and females remained at approximately 27 percent (26.6 for males and 26.7 for females) but for Negro youth

the male rate was 24.1 percent and the female rate 29.1. Urban centers with populations of 500,000 and over had a recommendation rate based on tonsils present of 21.1 percent compared to 28.1 percent for rural areas. The corrected rates are given in table 24 for each size of community.

TABLE 24.—Percent of youth known to have the tonsils present who were recommended for tonsillectomy by size of community of residence. Separate by race. NYA health examinations, United States

Size of community	Total	White	Negro
All communities.....	26.7	26.7	26.7
Under 2,500.....	28.1	28.7	26.0
2,500 to 25,000.....	28.9	28.8	29.9
25,000 to 100,000.....	24.5	25.3	21.3
100,000 to 500,000.....	26.4	23.1	35.2
500,000 and over.....	21.1	20.5	21.9

Weight and nutritional status

Extreme variations from average body weight usually result from improper nutrition, glandular dysfunction, or disease. While the amount of variation caused by each separate factor cannot be easily determined in a general study of health, the combined effect on the population being studied is of considerable interest. The respective weights of the individuals in the group studied were not difficult to secure. The interpretation of this information, however, is much more difficult. Obviously weight has almost no meaning except in relation to age, sex, and height. More recently it has been recognized that no very exact study of weight as a factor in health status can exclude a consideration of the type of body-build (thin and tall, heavy set, etc., are among the popularly used designations of this characteristic). Due to the lack of accepted standards for this factor, however, it is very difficult to obtain measurements which will make it possible to take body-build into account. For this reason no attempt has been made in this study to allow for the relationship between body-build and weight, but age, sex, and height have been taken into account.

The findings of the 1929 Supplementary Medical Impairment Study made by the Actuarial Society of America and the Association of Life Insurance Medical Directors, give average weights by sex, age, and height of a sufficiently large number of persons to warrant use of these averages as arbitrary weight standards, or bases from which to measure variation. In processing the data of this study, the percentage by which each individual varied above or below the average weight for persons of his age, sex, and height was recorded; height was used in single inches while age, though available by single years, showed little variation

and so was used in three groups, 16 to 17, 18 to 19, and 20 to 24 years of age. Thus, it was possible to tabulate how many of the youth fell within the weight limits of their particular weight standard, how many fell above these standards, how many fell below, and how far above or below. It is not intended that these deviations be considered as absolute indications of degree of "overweight" or "underweight." Nor are the average weights, or weight standards, intended to be set up as optimum weights. Studies by the United States Public Health Service have shown that these two are frequently not the same. Nevertheless, these standards do furnish convenient reference points to use in getting the composite picture of weight in relation to age, sex, and height. In cases with large deviations in either direction from the standard, it is probable that the actual weight is above or below the optimum.

Out of every 100 youth examined, over 11 were 15 percent or more below the weight standard for their age, height, and sex. While slight variations in weight may be accounted for by such factors as fashion, body-build, etc., it is probable that wide variations below normal most frequently result from nutritional factors. The individual who varies by as much as 15 percent below a standard of, say, 120 pounds, weighs no more than 102 pounds, and the variation (18 or more pounds) would seem to be so great as to suggest poor nutrition. If variations of less than this percent below the standard be disregarded, then 11.7 percent of the NYA youth had weights which indicated they may have been suffering from malnutrition in some degree. While no space on the examination form specifically called for an entry as to nutritional status, in 5 percent of the examinations the physician had noted under "Remarks" that the youth suffered from malnutrition or was considerably underweight. Since this information was not specifically requested, it is probable that the condition was underreported. This suggests that the 11 percent figure may be a fair approximation of the extent of clinically detectable undernourishment. A further indication of this is afforded by the tabulation of recommendations made by the examiner. For 12.1 percent of the youth examined a recommendation was made for special diet. Of course, not all of these recommendations were to increase weight, but a special hand tabulation of entries for this item indicated that over half of them were recommendations to "bring weight up to normal."

The proportion of youth examined whose weight varied above the preselected weight standard by at least 15 percent was 11.2 percent. Moreover, for 5.5 percent of the youth weights were recorded that were 25 percent or more above average, or

standard weight. While slight overweight in young people is not considered deleterious to health, persons markedly overweight are handicapped both physically and functionally. Obesity, or overweight to more than a slight degree, was noted on the examination form under "Remarks" for 2.8 percent of the youth examined. Some kind of special diet was recommended for 12.1 percent of the youth. Since between one-fifth and one-sixth of the recommendations for special diet were recommendations for a reducing diet, this particular diet recommendation was made for about 2 youth in every 100 examined. Although overweight may be caused by bad eating habits, there is often a glandular disturbance and the condition may require special study.

TABLE 25.—Percentage of male and female youth examined, by percentage variation from weight standard. NYA health examinations, United States

Variation from weight standard ¹	Total	Male	Female
Total known youth.....	145,297	74,730	70,567
All degrees.....	100.0	100.0	100.0
25 percent or more below standard.....	1.0	.6	1.4
15 to 24 percent below.....	10.7	9.0	12.5
5 to 14 percent below.....	31.3	32.4	30.1
Less than 5 percent above or below.....	30.5	34.0	26.8
5 to 14 percent above.....	15.3	15.8	14.7
15 to 24 percent above.....	5.7	4.8	6.7
25 to 34 percent above.....	2.5	1.7	3.3
35 percent or more above.....	3.0	1.7	4.5

¹ A preselected weight, specific for age, sex, and height, representing the average previously found for a large number of cases. See text for source.

It will be noted in table 25 that females tend to deviate more than males from their weight standards throughout the range. Approximately 10 percent of the males compared to 14 percent of the females were 15 percent or more below their respective weight standards; 0.6 percent of the males, but 1.4 percent of the females, were 25 percent or more below. Likewise, females varied more above their standards. About 8 percent of the males and 15 percent of the females were at least 15 percent above average weight. It will be noted, also, that females were almost three times as frequently recorded among youth 35 percent or more above standard, there being 1.7 percent of the males compared to 4.5 percent of the females in that class.

Racial variations from the weight standards were different for males and females. It should be realized that the same weight standards were used for both white and Negro youth. Negro males tend to vary less from the standard than white males. Only 6.1 percent of the Negro males were 15 percent or more below the average weights, compared to 10.2 percent of the white males. At 25 percent or more above weight

standard were 2.6 percent of the Negro males and 3.6 percent of white males. Among females, however, the Negro youth were less often below weight standards than white females, but more often above standard. Thus, 11.1 percent of them compared to 14.6 percent of the white females were 15 percent or more below standard. About 16 percent of the Negro females were at least 15 percent above weight standard, compared to 14 percent of the white females. Females 25 percent or more above their weight standard included 8.7 percent of the Negro females and 7.6 percent of the white.

An analysis of variation from the weight standard in communities of different sizes revealed an increasing percentage below weight standard as the size of community decreased. About 33 white male youth in every 100 were 5 percent or

TABLE 26.—Percentages of white male youth with specified variation from weight standard in each size of community. NYA health examinations, United States

Variation from weight Standard	500,000 or over	100,000-500,000	25,000-100,000	2,500-25,000	Under 2,500
Total white males examined.....	7,669	10,526	7,891	10,093	26,340
All variations.....	100.0	100.0	100.0	100.0	100.0
15 percent or more below.....	6.8	10.1	11.3	10.5	11.0
5 to 14 percent below.....	25.8	31.5	35.1	34.7	34.8
Less than 5 percent above or below.....	32.2	33.8	31.7	32.9	33.7
5 to 14 percent above.....	19.5	16.2	14.0	14.5	14.1
15 to 24 percent above.....	8.7	4.8	4.4	3.9	4.0
25 to 34 percent above.....	3.4	1.7	1.6	1.9	1.3
35 percent or more above.....	3.6	1.9	1.9	1.6	1.1
White males aged 16-20.....	5,537	8,733	6,511	8,207	20,611
All variations.....	100.0	100.0	100.0	100.0	100.0
15 percent or more below.....	5.8	9.2	10.6	9.8	10.6
5 to 14 percent below.....	25.3	31.1	34.3	35.0	34.8
Less than 5 percent above or below.....	33.2	34.9	32.8	33.4	33.9
5 to 14 percent above.....	20.5	16.5	14.3	14.6	14.4
15 to 24 percent above.....	8.1	4.8	4.5	3.8	3.9
25 to 34 percent above.....	3.4	1.6	1.7	1.9	1.3
35 percent or more above.....	3.7	1.9	1.8	1.5	1.1
White males aged 21-24.....	2,154	1,793	1,380	1,886	5,729
All variations.....	100.0	100.0	100.0	100.0	100.0
15 percent or more below.....	9.4	14.3	14.4	13.9	12.2
5 to 14 percent below.....	27.2	33.5	39.3	33.7	34.9
Less than 5 percent above or below.....	29.6	28.6	26.2	30.8	32.8
5 to 14 percent above.....	17.0	14.5	13.0	13.8	13.0
15 to 24 percent above.....	10.2	4.6	4.1	4.2	4.2
25 to 34 percent above.....	3.2	2.2	1.2	2.0	1.3
35 percent or more above.....	3.4	2.3	1.8	1.6	1.6

more below average weight in cities of 500,000, as compared to 46 in rural communities. This was true for male youth in the 16 to 20 age group as well as those in the 21 to 24 age group, as shown in table 26. It will be noted also that the older group tended to have more youth below standard than did the younger. Male youth 25 percent or more above standard were recorded more than

twice as frequently in cities of 500,000 and over as in rural areas. No variation with age is apparent.

TABLE 27.—Percentages of female youth with specified variation from weight standard in each size of community. NYA health examinations, United States

Variation from weight standard	500,000 or over	100,000-500,000	25,000-100,000	2,500-25,000	Under 2,500
Total white females examined.....	7,829	11,055	8,636	9,050	20,246
All variations.....	100.0	100.0	100.0	100.0	100.0
15 percent or more below.....	11.9	13.7	15.8	15.4	15.0
5 to 14 percent below.....	28.0	30.2	30.7	31.1	30.5
Less than 5 percent above or below.....	26.5	26.9	25.7	26.2	27.6
5 to 14 percent above.....	15.5	14.2	13.9	13.6	14.6
15 to 24 percent above.....	7.8	6.7	6.3	6.2	6.0
25 to 34 percent above.....	4.1	3.6	3.0	3.1	2.7
35 percent or more above.....	6.2	4.7	4.6	4.4	3.6
Total Negro females examined.....	5,348	3,602	1,673	819	2,309
All variations.....	100.0	100.0	100.0	100.0	100.0
15 percent or more below.....	10.6	12.5	12.6	13.6	8.2
5 to 14 percent below.....	28.8	30.1	31.6	28.4	29.7
Less than 5 percent above or below.....	26.7	25.4	26.7	28.4	30.3
5 to 14 percent above.....	16.2	16.1	13.8	15.4	17.2
15 to 24 percent above.....	8.2	7.4	6.7	7.2	6.7
25 to 34 percent above.....	4.4	3.2	3.7	2.7	3.3
35 percent or more above.....	5.1	5.3	4.9	4.3	4.6

A comparison of white and Negro females in communities of different sizes (table 27) reveals the same general situation as was found for males. More females were above weight standards in the larger cities. The percentage of youth more than 15 percent under the weight standards increased with decreasing size of city, for white but not for Negro females. Among rural Negro females there were 8.2 percent who were 15 percent or more below the weight standards, as compared to 10.6 percent in cities of 500,000 and over and approximately 13 percent in those cities between these two extremes. But among white females the relative number of youth 15 percent or more below weight standard increased from 11.9 percent in the largest to 15 percent in rural areas.

Negro females varied only slightly by size of community in relative numbers above weight standard. There were approximately 10 per 100 in cities of 500,000 and over and 7 to 9 per 100 in smaller places who weighed as much as 25 percent above their weight standard. White females with this much variation ranged from about 10 to 6 per 100 between larger and smaller places.

A comparison of the relative amount and direction of variation in weight among NYA youth in the various census regions is given in table 28. Southern regions had a larger percentage of youth

below standard than Northern or Western regions and fewer youth in the group above weight standard. Negro youth did not vary regionally in these respects as much as white youth. Females in every instance showed greater variation from weight standard than males. This sex difference was about the same for all regions.

TABLE 28.—Percentage of youth in each census region who were 15 percent or more below, or 25 percent or more above weight standard: Separate by sex and race. NYA health examination, United States

Census region	15 percent or more below standard				25 percent or more above standard			
	Male		Female		Male		Female	
	White	Negro	White	Negro	White	Negro	White	Negro
Total United States.....	10.2	6.1	14.6	11.1	3.6	2.6	7.6	8.7
New England.....	7.3	5.6	11.8	8.1	4.7	4.9	10.0	10.9
Middle Atlantic.....	5.9	6.8	9.8	11.2	6.9	3.0	10.9	6.9
East North Central.....	10.0	5.7	14.0	10.9	3.8	3.3	9.1	10.7
West North Central.....	9.5	6.3	13.6	12.2	3.5	3.5	8.6	10.4
South Atlantic.....	15.0	7.6	18.3	10.5	2.3	1.6	6.2	7.7
East South Central.....	15.7	6.2	20.3	12.0	1.6	1.4	5.3	7.1
West South Central.....	9.9	5.1	15.6	11.7	2.6	2.8	4.8	7.2
Rocky Mountain.....	11.8	3.4	13.0	8.0	2.1	2.7	6.3	10.2
Pacific.....	7.3	4.6	10.7	12.4	4.2	5.3	7.9	5.8

Condition of the heart and circulatory system

Heart disease is one of the chief causes of disability and death in persons past middle age. The onset of this disease is usually gradual and often unnoticed. Many cases have their beginnings in youth. The most common heart pathology in this age group can usually be detected by intelligent questioning, inspection, and stethoscopic examination. But determination of the degree of impairment and the prognosis often entails further study and observation. Heart murmurs are called functional if no changes in the organ have occurred. Some of the underlying causative factors commonly given for functional murmurs are cardiac displacement, anemia, or goiter, but they may be caused by recent vigorous exercise. Rhythm irregularities may or may not indicate heart involvement of a serious nature. Thus it will be seen that a complete diagnosis of heart impairment requires special study of the individual case.

Physicians were asked to decide whether the youth had organic heart disease. Where a decision was not reached as to whether a heart murmur or irregularity indicated the presence of heart disease or if the record submitted for tabulation had conflicting entries not clarified by subsequent

correspondence, the condition of the youth was coded as "unclear."

Organic heart disease was found present in 25 per 1,000 of the 147,813 youth examined; this should be considered a minimum figure. While more detailed study might have revealed that a few of the cases so diagnosed were not organic lesions, probably at least as many new cases would have been discovered by additional diagnostic studies.

Among white male youth the rate was 20 per 1,000 for the 16 to 20 age group, as compared with 28 per 1,000 for 21 to 24 years. Negro males had a rate of 23 per 1,000 for the younger group and 29 for the older. The prevalence of heart disease for Negro youth was somewhat higher than for white. For all Negro males the rate was 24 and for white males 22 per 1,000. Among females this race difference was greater, being 40 for Negro females as compared to 24 per 1,000 for white females. It is clear from the above rates that female youth had slightly more impairment of the heart than males, the rates per 1,000 white youth being 24 for females and 22 for males, and for Negro youth, 40 for females and 24 for males.

TABLE 29.—Percent of youth having specified heart condition, separate by race and sex. NYA health examinations, United States

Heart condition	Total youth	Male		Female	
		White	Negro	White	Negro
Total known youth.....	147,813	63,552	12,532	57,760	13,969
All conditions	100.0	100.0	100.0	100.0	100.0
Normal.....	93.4	94.5	94.1	92.9	90.1
Organic heart disease.....	2.5	2.2	2.4	2.4	4.0
Functional murmur.....	2.9	2.3	2.2	3.5	4.3
Rhythm irregularity.....	.4	.3	.5	.4	.5
Functional murmur and rhythm irregularity.....	.1	.0	.1	.1	.1
Heart condition unclear.....	.7	.7	.7	.7	1.0

Regions varied considerably in the relative number of youth diagnosed as having organic heart disease. The extent of this variation is shown in table 30. The sex and race differences mentioned in the paragraph above are present in most regions but considerable variation occurs from the figures given for the country as a whole. This recorded regional variation is probably due in part to actual differences but variations in the diagnostic facilities available and the consequent variations in the judgments of the examiners are too great to permit any definite statement. Southern regions have a lower rate of rheumatic fever, the most common cause of heart disease among youth. The lower rates found in the South in this study thus seem reasonable. There is,

however, a decided possibility that there was more frequent use of heart specialists' services in certain regions with consequent more complete case finding. This is a possible explanation of the higher rates noted in the Middle Atlantic region, since a large part of those examinations were from New York City, where specialists participated in a relatively large number of examinations. Conversely, the lower rates in Southern regions may be partly due to the smaller number of specialists used in rural areas.

Regardless of the race, sex, and regional variation present, it is significant that 25 NYA youth in every 1,000 were found to have some organic heart lesion. An early diagnosis of this malady often enables the youth to make adjustments that lead to a fairly long life of reasonably good health.

TABLE 30.—Relative number of youth with organic heart disease, per 100 youth examined, in each census region, as diagnosed by clinical examination, separate by race and sex. NYA health examinations, United States

Census region	Total	White		Negro	
		Male	Female	Male	Female
Total United States.....	2.5	2.2	2.4	2.4	4.0
New England.....	2.2	2.0	2.1	1.8	4.0
Middle Atlantic.....	3.7	3.3	3.5	3.8	5.2
East North Central.....	2.5	2.3	2.7	2.0	2.6
West North Central.....	2.4	2.3	2.2	1.2	4.4
South Atlantic.....	2.7	1.6	2.0	3.3	6.2
East South Central.....	1.7	1.5	1.5	2.5	1.6
West South Central.....	1.8	1.6	2.0	1.7	2.9
Rocky Mountain.....	2.8	3.0	2.6	1.3	4.5
Pacific.....	3.0	2.6	3.4	2.0	1.8

Blood Pressure

Blood pressure—the pressure of the blood on the walls of the arteries—is important as a partial index of the degree to which the heart, vessels, and related organs are functioning properly. High or low readings may also be important symptoms of other physical abnormalities. Knowledge of the systolic (maximum) pressure is especially valuable, being more easily and exactly determinable than diastolic (minimum) pressure. But diastolic pressure is less likely to be affected by such factors as excitement, recent physical exertion, etc., and so both readings will be discussed here. Blood pressures are measured in terms of the height of a column of mercury sustained by the pressure, and among youth the pressures most commonly found are from about 110 mm. (millimeters) to 130 mm. for systolic pressure, and from about 65 to 85 mm. for diastolic.

Unusually low pressures (below 95 mm. systolic; below 55 mm. diastolic) are important as possible

indications of such abnormal conditions as tuberculosis, malnutrition, focal infection, and anemia. Among the causes of high systolic and diastolic pressures are nervous disturbances, kidney dysfunction, positive blood serology, heart abnormalities, focal infections, and overweight. Selective Service requirements for class A (unlimited military service) are that the systolic pressure must not persist above 150 mm. or the diastolic above 90 mm. Pressures slightly below average have been found to be associated with lower mortality than those above average. The optimal pressures are probably lower than the average pressures.²²

The median systolic blood pressure among the 147,317 NYA youth for whom pressures were taken was 119 mm. Ninety-five percent of the youth had systolic pressures between 95 and 144 mm. Eighty percent had pressures between 105 and 134 mm.

The median diastolic pressure was at 74.4 mm. with 96.4 percent of the readings falling between 55 and 94 mm. and 87.8 percent falling between 55 and 84 mm.

Blood pressures are said to increase about one millimeter for each two years increase in age.²³ Among NYA males the median systolic reading was 120.2 mm. for youth aged 16 to 20 and 122.0 mm. for those 21 to 24 years of age. In the younger age group 4.7 percent of the males had systolic pressures outside of the 95 to 144 mm. limits, and in the latter age group 6.5 percent of the readings were outside.

Diastolic pressure varied with age in about the same manner as systolic. Males aged 16 to 20 had a median diastolic pressure of 74.2 mm.; for those 21 to 24 years of age the median was 76.4 mm. If limits of 55 to 94 mm. are considered normal, 3.7 percent of the males in the lower age group fell outside this range; 4.3 percent of the older group were outside.

TABLE 31.—Median systolic and diastolic blood pressure in mm. of mercury, of NYA youth, separate by race and sex. NYA health examinations, United States

Pressure	White youth		Negro youth	
	Male	Female	Male	Female
Systolic.....	120.8	117.3	119.3	116.5
Diastolic.....	74.7	73.9	75.1	74.5

Female youth have distinctly lower blood-pressure readings than males. This is shown in

²² Report of Joint Committee on Mortality of the Association of Life Insurance Medical Directors and the Actuarial Society of America, 1925.

²³ Norris, G. W., and Landis, H. R.: Diseases of the Chest and Principles of Physical Diagnosis. (W. B. Saunders and Co.) p. 164.

table 31 giving median systolic and diastolic pressures by race and sex. The percent of youth falling outside of various given limits are also shown (table 32), and these figures likewise indicate a clear tendency to lower pressures among females at the NYA age level. The variation with race is not sufficiently marked to draw definite conclusions.

TABLE 32.—Percent of youth outside given limits of systolic and diastolic blood pressure. NYA health examinations, United States

Limits of pressure (in mm. of mercury)	White youth		Negro youth	
	Male	Female	Male	Female
Systolic:				
Outside 95-144.....	5.0	3.9	5.0	4.4
Below 95.....	1.2	2.1	1.9	2.5
145 and above.....	3.8	1.8	3.1	1.9
155 and above.....	1.3	.6	1.2	.7
Diastolic:				
Outside 55-94.....	3.7	3.2	4.7	3.8
Below 55.....	2.2	1.9	2.3	1.8
95 and above.....	1.5	1.3	2.4	2.0
105 and above.....	.2	.2	.5	.4

A comparison of the various census regions with respect to the relative number of NYA youth having systolic pressures above and below given limits appears in tables 33 and 34. The variation shown for the limits set does not appear to give results with a consistent pattern. Such would not be expected since the factors associated with high and low blood pressure are not known to be related to geographic factors, and the variation in their effect on blood pressure is an unknown quantity. It is perhaps of some value, however, to know where these youth with abnormal pressures were found. Again, one must keep in mind the possible effect on these percentages of variation in technique among examiners.

TABLE 33.—Percent of youth in each census region with systolic blood pressure 145 and above, separate by race and sex. NYA health examinations, United States

Census Region ¹	Male		Female	
	White	Negro	White	Negro
Total United States.....	3.9	3.0	1.8	2.0
New England.....	4.1	3.1	1.4	1.0
Middle Atlantic.....	3.9	2.2	1.9	1.3
East North Central.....	4.4	2.8	2.3	2.1
West North Central.....	4.7	3.0	1.4	1.3
South Atlantic.....	3.0	2.2	1.7	1.9
East South Central.....	3.1	4.1	2.0	1.8
West South Central.....	3.1	4.1	1.6	3.0
Rocky Mountain.....	2.6	2.7	.9	1.1
Pacific.....	4.5	3.3	1.6	2.0

¹ The total youth examined in each region is shown by race and sex in table 1, of appendix C.

TABLE 34.—Percent of youth in each census region with systolic blood pressure below 95, separate by race and sex. NYA health examinations, United States

Census region ¹	Male		Female	
	White	Negro	White	Negro
Total United States.....	1.2	1.9	2.1	2.5
New England.....	.7	-----	1.2	1.0
Middle Atlantic.....	1.7	2.0	2.2	4.6
East North Central.....	1.6	2.2	2.4	2.8
West North Central.....	1.2	4.5	2.4	4.0
South Atlantic.....	1.1	1.9	1.8	2.0
East South Central.....	1.5	1.1	1.4	1.9
West South Central.....	.8	1.4	1.2	1.2
Rocky Mountain.....	1.1	2.0	2.3	1.1
Pacific.....	1.1	1.2	2.6	2.0

¹ The total number of youth examined in each region is shown by race and sex in table 1 of Appendix C.

Orthopedic defects

When a person lacks the natural use of some portion of the skeletal-neuro-muscular system, he is said to have an orthopedic defect. Orthopedic defects are usually either the loss (partial or complete) of a hand, an arm, a foot, a leg, or the impairment by a weakening or paralysis of some such part of the body or of the trunk or spine. Examining physicians were specifically requested to note on the reporting form the presence of any of these defects.

Arising congenitally or, more commonly, by accident or disease, orthopedic defects are usually more or less handicapping but may or may not be incapacitating. If a defect were severe enough to keep the youth from working, he ordinarily would not have been examined under the NYA health program. On the other hand, a number of youth with less severe handicaps may find difficulty in obtaining private employment and so frequently turn to the NYA to gain the advantage of some special skill. Thus these rates of orthopedic impairment may not hold for other low-income youth.

Orthopedic defects were reported for 50 out of every 1,000 NYA youth examined. This rate is over twice as large as that estimated from the National Health Survey for youth 15 to 24 years of age in families with incomes below \$1,000.²⁴ The discrepancy largely occurs in the number of youth reported with impairment, rather than loss, of one or more skeletal members. While the number of comparable youth with lost members was about 5 per 1,000 for the National Health Survey and 7 per 1,000 for the NYA data, the figure for youth having crippled or paralyzed members was less than 9 per 1,000 for the health survey population compared with 48 per 1,000 for NYA youth. In other words, physicians found

about five times as much skeletal-neuro-muscular impairment by their physical examination of NYA youth as was indicated by some family member reporting on a group reasonably comparable as to age and income. This difference probably is partly due to the selective factor in the youth examined mentioned above, but certainly it is also due to the manner in which the data were obtained, that is, by physical examination as opposed to interview. Such defects as spinal curvature, barrel chest, and pigeon breast, often included in the physician's report on NYA youth would have been entirely omitted from the health survey report.

Orthopedic defects of most types are permanent and thus cumulate with age. At about the NYA age level the incidence of lost members is at its highest rate,²⁵ and crippling and paralyzing defects are also rapidly increasing in numbers. This is reflected in the present study in the difference between the two age groups for males: Among white males, 7 per 1,000 in the 16 to 20 age group as compared to 18 for the ages 21 to 24 had lost parts; 52 compared to 97 had impaired parts. Among Negro males 5 as compared to 12 per 1,000 had lost members in the two age groups; impaired members were reported for 38 as compared to 57. It seems probable, however, that some of this difference between these two age groups results from a selective factor in the older group, rather than from incidence of new cases with increasing age. The effect of selection by industry and trade is probably such that the youth seeking NYA employment at the ages of 21 to 24 have more orthopedic impairments (both severe and slight) than the youth 16 to 20 who turn to NYA for work experience. (See discussion on pp. 4 and 5 of this paper.)

Male youth, partly because they are more often employed at machine trades, are subject to a higher rate of orthopedic defect by loss of members than are female youth. Only 2 females per 1,000 were reported with any lost members, but 9 males per 1,000 had one or more missing members. Sex differences in number of crippled or paralyzed members were less striking, the comparison being 58 male to 40 female youth per 1,000 examined.

Racial differences in prevalence of orthopedic defects were not pronounced. Prevalence rates were slightly higher for white youth. This is best seen, perhaps, in the data for male youth, there being 9 white males compared to 6 Negro males per 1,000 with one or more lost members, and 62 white males compared to 43 Negro males with crippled or paralyzed members.

Some orthopedic defects are obviously much greater handicaps than others; also, some types can be corrected or treated, while for others such

²⁴ National Institute of Health, The Prevalence and Causes of Orthopedic Impairments. U. S. Public Health Service. National Health Survey Preliminary Reports, Sickness and Medical Care Series Bulletin 4, 1933.

²⁵ National Institute of Health, op. cit. (see footnote 24).

a procedure is unnecessary or even impossible. The relative numbers of youth having one or more orthopedic defects are given below according to the type of defect. The frequency of more than one defect per youth is indicated by the figure of 55 defects per 1,000 youth, as compared to 50 youth with one or more defects per 1,000 youth examined.

TABLE 35.—Percent of youth having specified orthopedic defect, separate by sex and race. NYA health examinations, United States

Orthopedic defect ¹	All youth	White		Negro	
		Male	Female	Male	Female
Total known youth.....	147,813	63,552	57,760	12,532	13,969
Total all conditions.....	100.0	100.0	100.0	100.0	100.0
Any defect or defects.....	5.0	6.3	4.1	4.5	3.1
Defects per 100 youth.....	5.5	7.1	4.4	4.9	3.3
Hands or arms:					
1 lost.....	.1	.1	.1	.1	(²)
1 impaired.....	.5	.7	.3	.5	.2
Feet or legs:					
1 lost.....	.1	.1	(²)	.1	(²)
1 impaired.....	.9	1.2	.7	.9	.5
Fingers (1 or more):					
Lost.....	.4	.6	.1	.4	.1
Impaired.....	.3	.6	.2	.5	.2
Toes (1 or more):					
Lost.....	.1	.1	(²)	(²)	(²)
Impaired.....	.5	.4	.8	.2	.4
Hands, arms, feet, or legs:					
2 or more lost.....	(²)	(²)	(²)	(²)	(²)
2 or more impaired.....	.6	.8	.5	.6	.5
Spine or back impaired ³	1.3	1.4	1.2	1.1	1.1
Trunk impaired ³.....	.7	1.1	.5	.5	.3

¹ Flat feet (pes planus), reported for 2.2 percent of the youth examined, are not included here.

² Less than 0.05 percent.

³ This condition sometimes occurred along with some other impairment. Thus, the rate of orthopedic defects per 100 youth examined was 5.5 compared with 5 percent of youth involved.

It will be noted that the most frequent loss was of one or more fingers, reported for about 4 youth per 1,000; that the loss of a hand or an arm was reported for about 1 youth per 1,000, and 1 youth per 1,000 was reported with a foot or a leg missing. That such a large number of youth were reported with spine, back, or trunk impairments, 20 youth per 1,000 being so affected, is probably due to the frequency with which certain slight deformities were reported by examining physicians. As was pointed out above, these included many cases of curvature of the spine (scoliosis and lordosis) which were not considered at all crippling, and also included such items as barrel chest and pigeon breast, chest deformities which are not infrequent.

Tuberculosis

A photographic record of the presence and extent of tubercular lesions and other abnormalities affecting the lungs, heart, vessels, and other parts of the chest, obtained by roentgen ray, is com-

monly referred to as a chest X-ray. When combined with a physical examination the X-ray furnishes a powerful adjunct for obtaining complete information on chest defects. Although it would have been desirable to include a chest X-ray as a part of every examination, variation in available facilities made such a procedure impossible. Hence, in many areas, efforts to obtain chest X-rays were concentrated especially on those youth who had a positive reaction to an intradermal tuberculin test or those youth whom the physician referred for X-ray owing to other physical findings. In a few areas, particularly in those that include large cities, an effort was made to provide youth with chest X-rays as a routine measure.

Chest X-ray examinations were recorded for 13,224 NYA youth. In view of the ways in which youth were selected for testing, it can not be assumed that all the youth X-rayed were positive reactors to the tuberculin test or that other physical findings indicated the necessity of an X-ray. Nor can it be assumed that all of the youth not X-rayed had no indications for X-ray. Furthermore, the X-ray procedure alone does not always reveal early infections of tuberculosis or other impairments because some may not have advanced sufficiently to show on a single X-ray film.

In some areas, notably in one county in California, chest fluoroscopic examinations were used instead of X-ray examinations. Although this method utilizes the roentgen ray, no permanent record on a film is made. Less opportunity for some kinds of detailed study is afforded by these tests, but it is felt that the results give a dependable indication of the presence or absence of tuberculosis of the lung.²⁶ Since the coding procedure did not lend itself to keeping these areas separate, they were included as a part of the youth given X-ray examinations.

Findings are presented in table 36 in dual terms of percentages of total youth X-rayed having each defect listed, and corresponding percentages based upon the total youth examined in this study. It is hoped that this double type of presentation will lend some value to data otherwise rather difficult to interpret. The actual prevalence rate must lie somewhere between the two rates given. About one-half of all the youth examined received the tuberculin test and more than one-fourth of the total youth X-rayed are known to have reacted positively. But the exact effects of the physician's choice and of tuberculin testing on the results are unknown.

²⁶ Tuberculosis as used in this section refers only to tuberculosis of the lung. Tuberculosis of all other sites was reported for less than one youth per 1,000, and is shown in table 34 of appendix C.

TABLE 36.—Number and percent of total youth and of youth given X-ray examinations, by specified X-ray findings. NYA health examinations, United States

Chest X-ray findings	Total number of youth	Percentage distribution for youth by chest X-ray results	
		Total youth	Youth given X-ray
Total youth examined.....	147,663	100.00	-----
Youth not X-rayed.....	134,439	91.04	-----
Total youth X-rayed.....	13,224	8.96	100.00
X-ray unreadable.....	50	.04	.38
Lungs clear.....	11,713	7.93	88.57
Inactive tuberculosis.....	786	.53	5.94
Active tuberculosis; all stages.....	220	.15	1.66
Minimal.....	77	.05	.58
Moderate.....	33	.02	.25
Far advanced.....	44	.03	.33
Stage unknown.....	66	.05	.50
Positive lung findings except definite tuberculosis.....	377	.26	2.85
Positive findings in heart or vessels ¹	133	.09	1.01
Positive findings other than above ¹	99	.07	.75

¹ Sometimes recorded in addition to some one of the above conditions.

Sixteen out of every one thousand youth given an X-ray examination showed evidence of some stage of active tuberculosis. Three of these sixteen youth had far advanced tuberculosis. If the 13,224 youth on whom these percentages are based all had been selected at random from among the total 147,000 NYA youth, this rate—16 per 1,000—might be expected to represent the actual prevalence of tuberculosis among the entire group. But it is known that many of the youth X-rayed were selected on the basis of indication that they might be likely to have the disease. Thus, proportionately more youth with tuberculosis must have been included in the group tested than exist

among the general NYA population. The 16 per 1,000 figure, therefore, represents a maximum, somewhere above the true prevalence. These same data make it possible to establish a minimum rate somewhere below the true prevalence. For if all of the youth had been selected on the basis of tuberculin tests and physical findings and if these methods had succeeded in including every potential case in the group to be X-rayed, then the 220 cases revealed by X-ray would be all the cases there were in the entire 147,000 youth. If this were true, the rate of prevalence of active tuberculosis would be the percent of all NYA youth examined (147,000) who were found to have tuberculosis on chest X-ray (220). This minimum statement of prevalence is 1.5 youth per 1,000. The true prevalence must lie somewhere between these two rates.

A better approximation of the actual prevalence rate of tuberculosis is made possible by a special tabulation of some 14,000 examinations from 6 States, all the examinations available from those States at the time the special tabulation was made. In these 6 States an effort had been made to give all youth an X-ray examination and this was being done as rapidly as facilities permitted. At the time of the tabulation about 40 percent of these youth had been X-rayed. Thus, the group is believed to be essentially a random sample of NYA youth in these particular States. However, these youth are not properly distributed by census region and it is not contended that they constitute a representative sample of all NYA youth on this or other bases.

For this group of youth (see table 37) the rate of positive findings for active tuberculosis was 11

TABLE 37.—Number and percent of youth, examined in six selected states¹ by results of chest X-ray, separate by race and sex. NYA health examinations, United States

Results of Chest X-ray	Total youth		White				Negro			
	Number	Percent	Male		Female		Male		Female	
			Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	14,256	-----	4,848	-----	5,755	-----	1,517	-----	2,136	-----
Total youth not X-rayed.....	6,083	-----	2,539	-----	2,270	-----	576	-----	698	-----
Total youth X-rayed.....	8,173	100.0	2,309	100.0	3,485	100.0	941	100.0	1,438	100.0
X-ray unreadable.....	23	.3	4	.2	6	.2	4	.4	9	.6
Lungs clear.....	6,991	85.5	1,992	86.3	2,963	85.0	767	81.5	1,269	88.2
Inactive tuberculosis.....	474	5.8	133	5.8	138	4.0	113	12.0	90	6.3
Active tuberculosis, all stages.....	92	1.1	20	.9	44	1.3	11	1.2	17	1.2
Minimal.....	33	.4	5	.2	13	.4	7	.8	8	.6
Moderate.....	19	.2	6	.3	8	.2	1	.1	4	.3
Far advanced.....	8	.1	2	.1	6	.2	-----	-----	-----	-----
Stage unknown.....	32	.4	7	.3	17	.5	3	.3	5	.3
Positive lung findings except definite tuberculosis.....	136	1.7	29	1.3	42	1.2	29	3.1	36	2.5
Positive findings in heart or vessels ²	91	1.1	12	.5	20	.6	28	3.0	31	2.2
Positive findings other than above ²	77	.9	8	.3	37	1.1	8	.9	24	1.7

¹ The States included are: Vermont, Rhode Island, Michigan, Maryland, Arizona, and California, each being included on the basis of information available indicating that routine testing was being done. This special tabulation was made previous to receipt of all the health records from these States.

² Sometimes recorded in addition to some one of the above conditions.

per 1,000 youth X-rayed. For white male youth the figure is 9 and for white female 13 per 1,000, while the figures for Negro males and females are 11 and 12 per 1,000, respectively.

Total X-ray findings of tuberculosis, including active and inactive lesions, are cumulative with age. These lesions among white male youth increased between the two age groups 16 to 20 and 21 to 24 from 8.2 percent of the youth X-rayed in the former to 11.5 percent in the latter. The figures for Negro males were about the same, 8.4 percent being increased to 10.2. But the number of white male youth with active lesions increased from 1.4 to 3.7 percent, while for Negroes no increase in relative number of youth with active lesions was registered, there being 1.4 percent active in the 16 to 20 age group compared to 1.1 percent in the 21 to 24 age group. This discrepancy can be laid, at least in part, to the inadequacy of the sample, there being less than 200 Negro males X-rayed who were 21 to 24 years of age.

A comparison by urbanization groups in data as diverse as these must be interpreted with caution. The rural-urban findings were investigated and it was decided that the lower rates recorded for the larger cities were due to routine testing in many such places and more accessible use of the X-ray. This was indicated by the increasing proportion of youth X-rayed as the size of community increased. A detailed consideration of urbanization is therefore not justified. Furthermore, although X-ray findings will be presented in the appendix tables and in the supplemental tables being made available for each region, they should not be used for comparison of different sections of the country. Such comparisons are unjustified and will lead to erroneous conclusions. In view of the lack of data on this subject and the need for some basis for regional action, these tables are presented for use by those persons familiar with the practices followed during the survey with respect to X-ray procedures in their respective areas.

Venereal Disease

Results of the Blood Serologic Tests for Syphilis

Of the 147,813 NYA youth examined, results on blood serology are known for 96 percent. In most cases only one such test was given to each youth examined, although some of the positive or doubtful tests were followed with additional tests. It was realized that all cases would not be uncovered by a single test, but in testing on so large a

scale it is difficult to do more, especially when the first test is negative. Over one-fourth of the cases reported as doubtful had received two or more tests at the time of reporting.

One or more positive tests was reported for 16 in every 1,000 youth tested. Doubtful tests were reported for 3 youth per 1,000. A few cases (about 1 per 1,000 youth) were reported in which syphilis was definitely known to be present and no confirming test was necessary. Thus, 98 percent of the total youth examined were reported as negative on at least one test.

Statements on prevalence of syphilis in the population as a whole inevitably lead to questions on other factors such as sex, age, and race. These are known to present differences which complicate the problem of control. The importance of age as a factor in the control of syphilis, especially in these ages, is well known. It is demonstrated in the relatively short age period of these data, 16 to 24 years, by an increase in the number of white male youth with syphilis from 4 per 1,000 in the 16 to 20 age group to 8 in the 21 to 24 age group, and from 42 to 95 per 1,000 among Negroes for the two age groups.

The marked racial difference in prevalence of syphilis is immediately evident from the preceding statement. While only 6 white youth per 1,000 were found to have syphilis, the rate among Negroes was 68 positive results on one or more tests and 3 additional cases in which youth were known to have syphilis, making 71 found to have syphilis in every 1,000 Negro youth.

The sex differences in prevalence rate of syphilis among NYA youth were not great. For both races females had slightly higher rates than males. The rates for white youth were 7 per 1,000 females and 5 per 1,000 males; the Negro rates were 87 per 1,000 females and 53 per 1,000 males. It is not certain that these differences represent the actual sex differences in the NYA youth population. In the general population males are said to have a higher rate, in the ratio of 3 males to 2 females with syphilis.²⁷ Moreover, the differences in age distribution of these males and females may be masking the real sex difference in the data, since the rate is increasing rapidly during this age period.

Syphilis is known to be more prevalent in the South, both among Negro and white youth. In addition, the fact that a larger proportion of the population in the South is Negro increases the rates there. Regional differences were thus expected, and the relative number of known cases is presented by sex and race for each region in table 38.

²⁷ Parran, Thomas, and Vonderlehr, R. A. Plain Words About Venereal Disease, p. 37.

TABLE 38.—*Number of youth per 1,000 examined in each census region with one or more positive blood serology tests or otherwise known to have syphilis; separate by sex and color. NYA Health Examinations, United States*

Census region	White		Negro	
	Male	Female	Male	Female
Total United States.....	5	7	53	87
New England.....	2	4	18	64
Middle Atlantic.....	3	2	26	27
East North Central.....	4	5	41	64
West North Central.....	4	7	91	144
South Atlantic.....	4	9	61	111
East South Central.....	9	5	68	103
West South Central.....	6	9	55	90
Rocky Mountain.....	8	15	35	45
Pacific.....	6	6	37	18

Two unexpected findings shown in the regional table need to be examined. First, the rate among white females of the Mountain States was about twice as high as that for the country as a whole. On further analysis this was found to be largely due to the high prevalence rate in a single county in Arizona. The rate among white females in this county was 114 per 1,000. Eighty percent of these youth were Mexican but the rate was as high among the 20 percent of non-Mexican females as among the Mexican females tested. Most of these youth were positive by more than one test. The rate for the region, exclusive of these youth, was only 7 per 1,000.

Secondly, in the West North Central region among Negroes there were 126 positive tests reported for every 1,000 youth tested. This at first appeared high for that area, but it was found that the Negro youth were practically all from Missouri, the most Southern State of the region. Furthermore, three-fourths of the cases of syphilis among Negro youth of that region occurred in females, most of whom were in cities of 100,000 and over. Since two-thirds of these youth were positive by two or more tests, it would seem that the testing program of the State was as good as or better than that in other places, and the higher rate found reflects the actual conditions in the larger cities of the Southern part of the West North Central region. It should again be pointed out that the rate among Negroes was also high in other Southern States, especially in the South Atlantic, East South Central, and West South Central regions.

Gonorrhea

It is believed that the attack rate for gonorrhea is two to five times greater than for syphilis.²⁸ But the number of syphilis cases is relatively cumulative while the duration of gonorrheal in-

fection, especially with the advent of treatment with sulfanilamide drugs, has become very short. The prevalence rate for gonorrhea may therefore be lower than the rate for syphilis. Present inadequate methods of diagnosis of gonorrhea, as well as lack of sufficient facilities for laboratory testing, make difficult if not impossible the compiling of accurate data on prevalence. The findings presented below can only be interpreted as the number of cases uncovered by routine physical examinations with confirmation by laboratory tests in those cases where youth were thought to be infected.

One white youth per 1,000 and 10 Negro youth per 1,000 were reported as having gonorrhea without a confirming laboratory test being made. Physicians reported about 1 white male per 1,000 and 2 white females per 1,000 to have gonorrhea, but 14 Negro males as compared to only 6 Negro females with this disease. Confirming laboratory tests were reported on 4 additional white youth and 12 additional Negro youth per 1,000. The comparative sex rates for the laboratory test results were 2 white males to 6 white females per 1,000 and 11 Negro males to 13 Negro females per 1,000 tested. In all, then, physicians in routine physical examinations, with occasional laboratory tests, uncovered 5 cases of gonorrhea in every 1,000 white youth examined and 22 Negro youth per 1,000 with this infection. The actual number of youth infected is unknown. Since laboratory testing for gonorrhea was done for only a very small percentage of the youth, the true prevalence is certainly understated here.

Only 18 cases of venereal disease other than syphilis or gonorrhea were reported. These included chancroid, Vincent's infection of the genitals, and lymphogranuloma venereum.

Recommendations

About 17 youth per 1,000 were recommended as needing treatment for some venereal disease. These were mostly among the Negro youth, there being 5 recommendations per 1,000 white youth compared to 73 per 1,000 Negroes. Females were recommended for treatment a little more frequently than males. Venereal disease treatment was recommended for only 13 youth per 1,000 in places of under 2,500 population, while 23 per 1,000 youth in cities of 500,000 and over received this recommendation. There was, however, considerable variation in the rural-urban figures for the two races.

Hookworm infection

The most frequent of the pathogenic intestinal parasites, the hookworm, is found, in this country,

²⁸ Parran, Thomas, and Vonderlehr, R. A., op. cit., pp. 61, 64.

almost entirely in the Southern States. This results from the peculiar cycle by which the hookworm perpetuates its infection of human beings. This cycle may be thought of as beginning with the eggs and larvae in the intestinal tract of an infected individual. The larvae are discharged from the body and develop in the ground. Where sanitary facilities are inadequate, the worms return to their human host, possibly directly to the stomach in contaminated food or water, but usually through penetration of the skin of the foot or leg, whence they travel through the blood stream to the lungs, ascend the trachea, and are swallowed. Thus the worm returns to the intestine and the cycle is complete. Warm climates are necessary for the perpetuation of hookworm infection, since the worm spends one phase of its life in the soil and cannot live at low temperatures. The South not only meets this condition but in addition has much soil of the sandy or sandy-loam kind that is most favorable to the hookworm. Moreover sanitary facilities are poor in large parts of the rural South, and the relatively frequent habit of going barefooted—a result, probably of economic status as much as of climate—provides the necessary exposure.

Although some doctors and public health officials minimize the importance of slight infections of hookworm, no one denies the seriousness of hookworm disease, the condition that results from more severe infections (infestations). This condition is characterized by progressive anemia because the adult worms suck blood from the intestinal walls, the quantity of blood so removed being proportionate to the number of worms in the intestine. The presence of hookworm infection on a large scale in certain areas is especially challenging since there are well-established methods of control through improved sanitary facilities and caution against exposure. Much has been done in the last 30 years to control hookworms, and the prevalence has been greatly lowered.²⁹ Much remains to be done as is indicated by the findings of these examinations.

In the Southern States a laboratory examination of feces was made as a part of each youth's health examination. In all, over 34,000 youth were so tested. The laboratory tests were positive for hookworm infection in 9.5 percent of the tests.

The prevalence of infection varies sharply with sex and color and from one area to another even within States. Thus 13.9 percent of the white male youth tested were found to have hookworms, while 9.7 per cent of the white female youth showed positive results. Only 6.1 percent of

Negro males and 1.3 percent of Negro females showed laboratory evidence of infection. The variations by census region were even more pronounced than those by sex and color. In the East South Central region, 23.6 percent of the white male youth tested showed hookworm infection; in the South Atlantic region the corresponding figure was 14.1 percent, and in the West South Central region 7.0 percent. In some few of the States in each of these regions no routine fecal examinations were made because they were known to be out of the area of high infection. The percentages are based only upon those youth tested.

Table 38 shows the findings of fecal examinations for hookworm infection for each of the three regions in which testing was done. It is seen that the sex and color differences, as well as the regional variations, hold throughout. Similar differences have been noted in other studies of hookworm infection and various theories have been advanced. The higher rate for males is thought to be due to greater exposure, both through wider outdoor activity and more frequent barefootedness. One explanation offered for the color differential is that the thicker epidermis of the Negro offers more resistance to penetration by hookworms, while another theory attributes to Negroes an inherited greater resistance to the worm, acquired through generations of exposure to it.³⁰ (The disease is said to have been introduced into this country through the importation of Negroes as slaves.)

TABLE 39.—The numbers and percentages of youth given a fecal examination, who were found to have infections of hookworms; by sex, color, and census region. NYA health examinations, United States

Census region	Number of youth tested and percentage with positive result							
	White males		Negro males		White females		Negro females	
	Number tested	Percent positive	Number tested	Percent positive	Number tested	Percent positive	Number tested	Percent positive
Total, 3 regions....	11,744	13.9	4,873	6.1	13,288	9.7	4,313	1.3
East South Central.....	3,376	23.6	2,460	8.0	5,704	14.2	1,269	1.7
South Atlantic.....	3,563	14.1	1,322	5.7	4,279	7.4	2,274	1.3
West South Central.....	4,805	7.0	1,091	2.2	3,305	5.1	770	.4

Most physicians examining these youth felt that youth with infections of hookworm should receive treatment for that condition. Of the youth reported with hookworm the percentages for whom recommendations for treatment were made are as follows: In the East South Central region, treat-

²⁹ Keller, Alvin E., Leathers, W. S., and Densen, Paul M. The Results of Recent Studies of Hookworm in Eight Southern States. *Am. Jour. Trop. Med.*, 20, 4:493,509 (1940).

³⁰ Smillie, W. G., and Augustine, D. L., Intensity of Hookworm Infestation in Alabama: *Jour. Amer. Med. Ass'n.*, Vol. 85, p. 1959 (1925).

ment was recommended in 98.7 percent of all known cases of hookworm; in the West South Central region, 99.1 percent; and in the South Atlantic region, 80.5 percent.

A direct comparison of the frequencies of positive hookworm findings by communities of various sizes was not made. The relative frequency with which recommendations for hookworm treatment were made varied inversely with size of community. Thus, the relative number of these recommendations made in rural areas was about 20 times as great as the number made in the largest cities, and the frequency of this recommendation decreased regularly with each increase in size of community.

Urinalysis

For almost 98 percent of the NYA youth examined, a urinalysis was performed. About 8 youth in each 100 examined were found to have some abnormality of the urine.

Although minor deviations from normality in content of sugar, albumin, and other matters are not of special significance when considered separately from other physiological conditions, data on gross physical findings are of some help in interpreting specific results of these tests.

Albumin

Five youth in every one hundred were reported to have albumin in the urine to some degree. But only 0.7 percent had a medium amount, and 0.5 percent a marked condition of albuminuria. Since only one test was reported, these findings would ordinarily suggest little more than the need of a careful health check-up to be certain that no correctable kidney impairment was present. Male youth between the ages of 21 and 24 years were observed to have albuminuria less frequently than youth aged 16 to 20. This was true for white males and, to a very slight extent, for Negro males.

TABLE 40.—Percent of male youth in two age groups having specified amount of albuminuria, separate by race. NYA health examinations, United States

Albuminuria	White		Negro	
	16-20	21-24	16-20	21-24
Total youth given urinalysis.....	49,413	12,877	9,478	2,645
All conditions.....	100.0	100.0	100.0	100.0
None.....	95.1	97.0	95.7	96.1
Slight.....	3.5	2.3	3.1	3.4
Medium.....	.8	.5	.7	.4
Marked.....	.6	.2	.5	.1

Females tended to have a slight degree of albuminuria a little more frequently than males, 4.4 percent compared to 3.2 percent. Race differences in amount of albumin were insignificant.

Sugar

Sugar was present in the urine of 2.6 percent of the youth. No variation with age and sex was noted, but Negro youth tended to have sugar in the urine a little more frequently than white youth, the total for all degrees being 3.5 percent of the Negroes compared to 2.4 percent of the white youth.

Other Urinalysis Findings

Other pathological findings, principally casts, pus, or blood, were reported in 0.9 percent of the tests, but for only 0.2 percent of the youth to more than a slight degree. Here too, Negro youth more frequently had positive findings. More findings were reported for female youth than for males. There was a slight decrease in other pathological findings with increasing age among males so tabulated.

TABLE 41.—Percent of youth with other pathological findings (blood, pus, casts, etc.) on urinalysis, separate by sex and race. NYA health examinations, United States

Other findings	Male Youth		Female Youth	
	White	Negro	White	Negro
Total known youth.....	62,290	12,123	56,484	13,328
All degrees.....	100.0	100.0	100.0	100.0
None.....	99.2	99.0	99.0	98.5
Slight.....	.7	.7	.8	1.0
More than slight.....	.1	.3	.2	.5

Other diseases and dysfunctions

A wide variety of diseases, impairments, and conditions other than those discussed in the previous pages was noted among this group of NYA youth. Only brief mention of the more important ones can be made, but a fairly complete summary is presented in tabular form in appendix C.

Inguinal hernia, more common among males, was reported for 16 in every 1,000 males and 1 per 1,000 females. For males between the ages of 16 and 20 years the rate was 14 per 1,000 youth; 23 per 1,000 males 21 to 24 had this condition. The rates for Negro youth were slightly lower than those for white. Other types of hernia affected 4 youth in each 1,000, the most common being umbilical hernia, which was present in 3 per

1,000. Umbilical hernia was a more frequent defect of Negro youth, their rate being 8 per 1,000, as compared to 2 per 1,000 for white youth.

Hemorrhoids were present in 14 males per 1,000 and 26 females per 1,000. More than three-fourths of all cases were slight. For males the prevalence rate increased from 12 per 1,000 in youth 16 to 20 years of age to 24 in youth aged 21 to 24, and it is probable that this increase with age was as great or greater for females. The rate of prevalence of hemorrhoids for Negro youth was slightly higher than for white, 27 as compared to 18 per 1,000. Other ano-rectal disorders, including ulcerations, fistula, fissure, and other less common conditions were reported among NYA youth at a combined rate of about 3 cases per 1,000 youth examined.

Defects of the skin were noted among 182 NYA youth per 1,000. The most frequently reported was acne; there were 150 acne cases per 1,000 white youth and 104 cases per 1,000 Negro youth. Only about 7 percent of the acne cases among white youth and 3 percent among Negroes were considered severe by the examiners. Fungus skin diseases (including ringworm) occurred on about 10 youth per 1,000; skin diseases of bacterial origin on 3; and skin parasites were found on only 2 youth in each 1,000. Functional and allergic skin conditions were present on about 4 youth per 1,000. The reader is referred to the appendix tables for greater detail.

Examinations of over 90 percent of the youth for genito-urinary disorders other than venereal disease revealed such defects among 135 youth per 1,000. Abnormal prepuce occurred in 108 white males and 161 Negro males per 1,000 examined; varicocele in 43 white males per 1,000 compared to 17 Negro males; and hydrocele in about 4 per 1,000 white and less than 3 per 1,000 Negro males. Urethral discharge was noted in 3 white males per 1,000 but for Negro males the rate was 23. Among females, urethral discharge was present in 12 white and 39 colored youth in each 1,000 examined. Menstrual disorders were reported for about 37 female youth per 1,000; no difference was noted between the races. Vaginal or cervical discharge was reported for 26 white females per 1,000; 57 Negro females in each 1,000 had such a discharge. Other genital defects (including undescended and atrophic testes, ulcerations, etc.) occurred in about 15 youth per 1,000. Defects of the kidneys and urinary system were reported for only 3 youth in each 1,000. Many of the above conditions were reported more frequently in Southern States both for Negro and white youth. Menstrual disorders, however, were relatively more frequent in the North, reaching an average of 82 cases per 1,000 females in the New England region.

Some nervous condition or mental defect was present in 34 youth in every 1,000 examined. Ten youth per 1,000 were reported as extremely nervous, but this figure may be somewhat exaggerated due to a fear of the examination. These rates were slightly higher for females than males and higher for white youth than Negro youth. Some degree of mental retardation was reported in about 12 youth per 1,000, but in only 3 per 1,000 was the deficiency considered marked. Again, only slight sex and race variation was noted, but such deviation as occurred pointed consistently to higher rates for white youth than colored and higher rates for males than females. Speech defect (other than mutism) was present in 4 youth in every 1,000 examined; epilepsy in 2 per 1,000; and some form of neurosis in 1 per 1,000. A number of other more or less specific nervous and mental conditions were tabulated and together were present in about 10 youth per 1,000, but none was separately recorded as present among all youth to the extent of 1 in 1,000. The appropriate appendix table will show the number of youth recorded with each of these nervous defects.

Numerous other defects in addition to the ones mentioned above or ones specifically provided for on the examination form were written in by the examiner under the heading of "Other Defects." These were tabulated in 35 separate classes and are presented in appendix table 34. The two largest of these classes, "underweight" (5.0 percent of the youth) and "overweight" (2.8 percent of the youth) have already been mentioned under the discussion of variation from weight standard. The only others containing as much as one percent of the youth were severely flat feet (2.2 percent), postural defects (1.7 percent), and dysfunctions and complaints of the digestive tract (1.2 percent). The remaining classes, each including less than 1 youth in 100, are reported only in tabular form. Flat feet were reported twice as frequently among males as females, 30 compared to 14 per 1,000 and slightly more frequently among Negro than white youth. Postural defects were noted relatively less frequently among Negro youth, 11 per 1,000 compared to 19 per 1,000 for whites; no consistent sex differences were evident. In both races, dysfunctions of the digestive tract were over three times more frequently reported among females than males, averaging about 19 per 1,000 for the former as compared to 5 per 1,000 for the latter.

Recommendations

Recommendations were made for hernia repair for about 17 males per 1,000 in both races. The rate increased from about 15 per 1,000 for male youth aged 16 to 20 to 25 per 1,000 for those

aged 21 to 24. Only about 2 females per 1,000 needed herniotomy. Rural youth and those from smaller cities were almost twice as likely to need this operation as youth from cities of 500,000 and over; the comparative rates for total males were 20 per 1,000 for the rural and 12 per 1,000 for the largest urban centers.

Of the 20 youth per 1,000 with hemorrhoids, only about one-fourth were recommended for hemorrhoidectomy. This operation was considered necessary for only 4 males and 6 females per 1,000 examined. It was recommended twice as frequently among Negro youth as among white, 9 compared to 4 per 1,000.

For most of the cases of skin defects noted during health examinations, treatment was not considered necessary by the examining physicians. About half of the recommendations coded under "Other Repetitive Medical Therapy" were for treatment of the skin, giving a rate of about 14 youth per 1,000. It is probable that most cases of acne, the item of greatest frequency among skin defects, were not considered to need treatment, since this defect often disappears as the youth matures.

Circumcision was recommended for 6.5 per-

cent of the males, 5.7 percent of the white males, and 10.5 percent of the Negro. Among youth in cities of 500,000 and over the rate was only 1.7 percent for white males, and 4.4 percent for Negro males, but in all other urbanization groups the rate was higher. It increased to 5.9 percent for white males in communities under 2,500, but among Negroes the variation by size of community was not regular, the highest rate being 16.6 percent for cities of 2,500 to 25,000 population.

Varicocelectomies made up about one-fourth of the "Other Minor Surgery" recommendations, or, for males, a rate of 6 per 1,000 youth. Hydrocelectomies constituted 15 percent of the "Other Major Surgery" recommendations, i. e., a rate of almost 2 per 1,000 males. About 2 youth per 1,000 were in need of an appendectomy.

In the discussion above on recommendations, and in the previous discussions under each specific type of defect, most of the recommendations made by physicians, dentists, and other specialists conducting the examinations have been covered. The appendix tables on specific recommendations and on urgent recommendations will be helpful to those wishing more detail on this subject.

IV. SUMMARY AND CONCLUSIONS

The findings of nearly 150,000 complete physical examinations of youth between the ages of 16 and 24 are analyzed in the present paper. These youth were employed or seeking employment on out-of-school work projects of the National Youth Administration, and are believed to be representative of all NYA out-of-school youth. They constitute about one-sixth of the total number of such youth employed during the 9 months period from January to October 1941, during which time these examinations were made. Furthermore, they are believed to be fairly representative of the much larger group of all American youth of their age and low economic status. Both rural and urban youth from all but one of the 48 States are included in this study. An evaluation of the representativeness of the sample appears in appendix A, and the limitations that must be placed on generalizations drawn from these data are discussed there.

About one-third of the youth examined had some health defect that placed a restriction on the sort of work they could do. Two-thirds were physically fit for any kind of work. Most of the one-third whose employability was limited by health defects were fit for almost any type of work but were handicapped for certain especially exacting employment (such, for example, as work requiring unassisted vision no worse than a 20/40 Snellen chart reading). Three percent of all the youth examined were judged to be either temporarily or for a prolonged period unfit for any regular NYA employment. The ratings of the employability of the NYA youth examined represent a summary of evaluations made for individual youth by the examining physicians.

The proportion of youth for whom health defects placed some limitation on employability (whether a slight, severe, or absolute limitation) was about the same for male and female youth, and much the same for Negro and white youth. However, more Negro than white and more male than female youth were classed as absolutely limited in employability, i. e., as temporarily or permanently unfit for NYA employment. Likewise, in the southern and southwestern census regions, relatively more youth were classed as unfit for NYA employment. Variations in prevalence of communicable diseases are thought to have caused these differences. The examining

physicians in rural areas generally classified a larger proportion of youth as fit for any employment than did examiners in cities.

While only one-third of the youth were limited in their employability, about nine-tenths of all the youth examined had one or more health defects. This is shown by the number of youth for whom the examining physicians and dentists recommended some sort of medical or dental service. Some such recommendation was made for 84 percent of all youth examined, and, where dentists participated in the examinations, the number receiving at least one recommendation rose to 93 percent.

There were 166 recommendations made for every 100 youth examined. But for the 60,000 youth whose oral examination was by a dentist, there were 185 recommendations per 100 youth. It is believed that the latter figure is probably a more accurate measure of the health needs of the NYA youth.

The most frequent recommendation was one for dental care, needed by over 84 youth out of every 100 examined by a dentist. Refractions and tonsillectomies were each needed by about 19 youth per 100 examined, and recommendations for additional diagnostic procedures, special diets, and study by specialists ranked next in relative frequencies.

The number of recommendations made by the examiners varied by sex, color, age, size of community, and census region much the same as did the health status and employability classifications; the number of recommendations was high where health placed greater limitations on employability.

The most frequent abnormality recorded was untreated dental caries. At least one untreated carious tooth was reported for 83 percent of all youth examined by a dentist. The average number of untreated carious teeth per 100 NYA youth was found to be 472, while about 918 teeth per 100 youth were or had once been carious. Comparisons of NYA youth with high school and college youth and with other groups of employed youth indicate that while the total caries experience, past and present, is much the same for all these groups, the NYA youth have a larger relative number of untreated carious teeth, indi-

cating less dental care received. No differences were found between the dental health of youth in cities and youth in rural areas. There were marked variations by census region in caries prevalence, the West South Central and Rocky Mountain regions being unusually low. Negro youth were recorded as needing about the same relative amount of dental care for untreated caries as needed by white youth. However, Negro youth had a very much lower rate for total caries experience, past and present, indicating that the attack rate is correlated with race. Females had about the same present extent of caries and need for dental care as males, but their total caries experience was higher than that of males.

Vision below normal (20/20 Snellen chart reading taken as normal) was recorded for over one-third of the youth, but most of the defects were slight. However, 7.8 percent of the youth had Snellen chart readings of 20/100 or worse in at least one eye, and 5.0 percent had vision of 20/200 or worse in their poorer eye. For 86.4 percent of the youth vision was 20/40 or better in both eyes. Defective vision was recorded more frequently for white than for Negro youth and more frequently for female than for male youth.

More than 11 percent of the youth had recorded weights at least 15 percent below the average for their age, sex, and height; over 5 percent weighed at least 25 percent more than average. More

females than males had weights differing widely from average.

Organic heart lesions were found in 2.5 percent of the youth examined. This percentage was about the same for total, male, and white female youth; 4.0 percent of the Negro females had this disease.

It is not possible to summarize in a few words the prevalences recorded and the differentials discovered for the many other separate defects that are discussed in the text of the paper. Every abnormal condition noted by the examining physician was tabulated and all defects reported with any appreciable frequency are discussed individually. In addition to the discussion in the text, the methodology of the study and the basic tables from which the conclusions were drawn are presented in the appendices.

To state the conclusions that must be drawn from these findings on the health of youth seems almost superfluous. The bald facts that nine-tenths of these low-income youth were found to be in need of medical or dental attention, and that one-third of them were unable to do certain kinds of work because of health defects—these facts speak more loudly than hortatory sentences of the great health needs of youth. Perhaps now, when the complete mobilization of the human resources of our country is so important, these needs will be recognized and action will be taken toward meeting them.

APPENDIX A

APPENDIX A: THE METHODOLOGY OF THIS STUDY

The examination procedure

As has been indicated elsewhere in this paper, a standard examination form was used in all States and by all examining physicians and dentists. (A copy of the examination form appears in appendix B.) Standard instructions on procedure to be used in filling out the form were issued to all examiners. The form and the instructions provided that the following be done routinely: serologic blood test for syphilis; urinalysis; tuberculin test; stethoscopic examination; dental examination; Snellen chart vision test; eye, ear, nose, and throat examination; and examination for various other conditions or defects as, for example, skin diseases, hernia, and hemorrhoids. Space was also provided for recording any defects or diseases found in addition to the ones specified on the examination form. A record was made of the youth's disease history, smallpox and typhoid immunizations, and recency of the last visit to a physician and to a dentist. Provision was made for chest roentgenograms wherever facilities were available. In some localities this testing was done routinely, in others, only where indicated by physical findings or tuberculin test, and in still others was not done at all. Certain other laboratory tests (blood counts, smears for gonococci, etc.) were made where deemed necessary, and fecal examinations were made where geographically and epidemiologically indicated.

In all cases the physical appraisals were made by practicing physicians and dentists licensed in the State where the examinations were conducted. The medical examiners were usually appointed with the advice of the local medical societies. State and local health departments cooperated with the NYA by making blood serological tests, fecal examinations, and, in some instances, by supplying smallpox vaccine, typhoid vaccine, and tuberculin. State and local tuberculosis associations frequently assisted in the tuberculin testing and chest X-ray phases of the examination.

Examinations were conducted in clinics, hospitals, NYA centers, or in the private offices of physicians and dentists. Some examinations, particularly in the larger urban centers, were made by examining teams composed of physicians with certain specialties of practice, a dentist, and a nurse.

Each physician was instructed to discuss the results of the examination with the youth, answer any questions which the youth might have regarding his physical condition, and encourage him to obtain needed care. In addition to recording the findings of the examination, each physician was required to indicate his recommendations as to correction of defects and to submit a statement regarding the youth's physical capacity for certain types of work. These statements were used by the placement office as well as by the health supervisors (in most cases public health nurses) in an extensive program of counselling and referral service for the correction of the defects noted.

The tabulation procedure

The records of all health examinations made in the various States were forwarded immediately (without being delayed for any corrective treatment or further study of the patient) to the central tabulating office established for that purpose at Chicago, Ill. They remained in that office for a short time (the "average stay" of a record in the tabulation office was less than 10 days) during which time the statistical information they contained was edited and coded, and the codes punched in Hollerith-type sorting machine cards. The original record was then returned to the State health supervisor and consultant for use in connection with the individual youth.

In the tabulation office the work of processing the records was performed by a staff composed of physicians, senior medical students, machine operators, supervisors, and NYA out-of-school youth. All records were reviewed by the medical section, manned by physicians and senior medical students supervised by a full-time licensed physician. In this section all entries that did not lend themselves to routine handling were coded and verified. Here too, the comparison of health status and employability classification with findings was made. Every step in the processing procedure—whether assigning codes, transcribing codes, punching cards, or whatever—was paralleled by a repeat step to verify the accuracy of the work. Repeated spot-checks of completed work were made against the original records to make certain that errors were being corrected by the verifiers and that the final result was as accurate as possible

Verification of the card punching was done, using verifying key punch machines, which provide a reasonably certain mechanical check against error. The final spot checking of several hundred thousand individual verified codes failed to reveal more than a small fraction of a percent of them to be in error.

Selection of the sample

When plans were first projected for the present study it was realized that administrative difficulties, along with lack of sufficient basic data on the socio-economic characteristics of NYA employed youth, would prevent the use of a pre-selected stratified sample. Instead, as rapidly as State health programs got under way during and after January 1941, the supervisors in the several States were instructed to forward all completed examinations to the tabulation unit. Further instructions provided that all youth newly assigned to NYA work be given the standard examination. It was urged that, as rapidly as possible, youth already employed also be examined, using the standard form, and that their examination records be forwarded for tabulation along with those of newly assigned youth. Every effort was made to insure that all examinations—regardless of physical findings—were sent to the tabulating unit as soon as they were made. Thus, no control was maintained over the relative proportions of examinations of different sex, color, rural-urban, and age groups to be submitted, except for the sequence in which examinations were scheduled locally. Nevertheless, since this sequence was either that in which youth were being assigned or else was such as to include all the youth employed on first one and then another project, the sample might be expected to be reasonably random. Finally, when the number of examination records that had been received from certain States had become clearly adequate for their representation in the desired total number of records—set at approximately 150,000—forwarding of schedules from these States was discontinued.

Appraisal of the sample obtained

A careful evaluation of the representativeness of the sample obtained is made difficult by the lack of the necessary detailed information concerning the universe from which the sample was drawn—the total group of NYA employed youth. Distributions by age, urbanization groups, etc. are not available for total NYA employed youth and so comparisons on these bases of the sample, and the group it represents are not possible. It will, however, be possible to investigate the residence, sex, race, and age characteristics of the

sample and to compare some of these characteristics with the total NYA youth population.

Region

The examining procedure was not instituted at the same time in all of the States; in fact, some States were just getting their health programs well organized at the time it was necessary to tabulate the data received in order not to delay the report beyond its most useful time period. For this reason certain of the regions were not as well represented as others. However, with the exception of the New England and Middle Atlantic regions, which are admittedly underrepresented, the relative number of youth examined and included in the sample compares favorably with the number of NYA youth employed in each region. The exact regional relationships are presented below.

	Youth employed ¹		Youth examined		Percent of employed youth examined
	Number	Percent	Number	Percent	
Total United States.....	885,389	100.0	147,813	100.0	16.7
New England.....	52,495	5.9	5,262	3.6	10.0
Middle Atlantic.....	153,887	17.3	13,075	8.8	8.5
East North Central.....	174,097	19.7	30,607	20.6	17.6
West North Central.....	97,458	11.0	19,759	13.4	20.3
South Atlantic.....	125,999	14.2	21,159	14.3	16.8
East South Central.....	77,827	8.8	15,785	10.7	20.3
West South Central.....	117,446	13.3	21,445	14.5	18.3
Rocky Mountain.....	28,832	3.3	5,993	4.1	20.8
Pacific.....	57,348	6.5	14,728	10.0	25.7

¹ These figures represent the unduplicated count of the total different youth employed on NYA out-of-school work projects at any time during the nine-month period January through September 1941.

A table showing the number of youth examined in each State will be found in appendix C (table 1). Reference to this table will show that the Middle Atlantic region is not only underrepresented but consists of a disproportionately great number of examinations from New York City, examinations probably somewhat atypical of the region. Moreover, the underrepresentativeness of the New England region is seen to result largely from the fact that no examinations were tabulated for Massachusetts, the most populous State in that region. It is difficult to determine the extent to which the underrepresentation and the atypical internal compositions of these two regions affect the total national picture. It seems probable that the poorest represented portion of the Middle Atlantic region is not unlike certain other regions (e. g., the East North Central) which was well represented, perhaps even overrepresented. It must be realized that too few cases from any region would not distort the resultant findings unless the cases

which were not obtained differed from the 150,000 cases which were tabulated. It seems not over-optimistic to hope that the deficiencies from these two regions do not seriously affect the total findings.

Sex and Race

About one-half of the NYA youth examined were male. Almost 18 percent were Negro, but among the females 19.5 percent were Negro, as compared to 16.5 percent of the males. (Included with youth classed as "white" were a small proportion, less than one-half of 1 percent, who were of other races, primarily Chinese, Japanese, or Filipino.) When compared to the number of youth employed during the same period, the relative number examined in each sex and color group is quite similar despite no direct effort to control the representation of each group. The comparative numbers and percentages follow.

	Youth employed		Youth examined		Percent of employed youth examined
	Number	Percent	Number	Percent	
Total youth.....	885,389	100.0	147,813	100.0	16.7
Male youth.....	525,635	59.4	76,084	51.5	14.5
White.....	455,897	51.5	63,552	43.0	13.9
Negro.....	69,738	7.9	12,532	8.5	18.0
Female youth.....	359,754	40.6	71,729	48.5	19.9
White.....	309,146	34.9	57,760	39.1	18.7
Negro.....	50,608	5.7	13,969	9.4	27.6

Females are somewhat overrepresented, the sample including about 20 percent of the number employed as compared to only 15 percent for males. Negro youth are slightly overrepresented for both sexes but more especially for females. It should be pointed out that the race distributions of the above employment figures are estimates. Exact figures were available by State and by sex for the entire 9-month period, but separate figures by race were not available for the period January through June. The total youth, by sex, were distributed by race on the basis of the data for July through September. Thus, it is not possible to evaluate precisely the race distribution of the sample. It seems unlikely, however, that the disproportions are great enough and the differentials in health sharp enough to affect markedly this picture of the health of total NYA youth. Moreover, the accompanying discussion presents data, on almost every aspect of the examination, not only for total youth but also separately for male and female and for white and Negro youth. The differences noted between this sample and the total

NYA population, then, are not a serious drawback since they have no effect on rates that are specific for sex and race.

Age

Eligibility for employment on NYA out-of-school work projects is limited to youth aged 17 to 24, inclusive, and, under certain conditions, youth aged 16. (Youth 16 years of age could be employed by arrangement with school authorities.) The examinations tabulated did not include supervisors. The median age for all youth examined was 19.3 years. Over 70 percent were 17 to 20 years of age, about 42 percent being either 18 or 19. The median age for each of the sex and race groups varied between 19 and 20 years, females tending to be slightly older than males and Negroes older than white youth. (See appendix C, table 3.)

Size of Community in Which Youth Lived

Out-of-school work projects were available through NYA in practically every county in the United States; only about 5 percent of the counties failed to have youth on the program in 1940 (1941 data not available) and these were in the most sparsely settled regions. Youth examined lived in communities ranging in size from rural farm to urban centers of 500,000 or more persons. About 36 percent of them lived in cities of 100,000 or more, 28 percent in cities between 2,500 and 100,000, and 36 percent on farms or in rural communities of less than 2,500 persons. No data are available for comparison of the sample with total NYA youth by size of community. Census figures for 1940 showing the total number of youth in the United States in the age group 15 to 24, living in farm communities and cities under 2,500, give some indication of how well these data represent youth on this basis for the country as a whole. This comparison is made below. A word of caution should be given to the effect that considerable regional variations were found in rural-urban distribution. The data would seem to indicate that rural white youth of both sexes are only slightly underrepresented in the sample. Negro youth in rural areas, and especially Negro females, are considerably underrepresented. There are relatively only about half as many rural males and a third as many rural females included as are found in the general Negro population.¹ Again it must be remembered that the disproportionate numbers of urban Negroes will not affect rates that are specific by race and size of community, and in the present paper such specific rates have been pre-

¹ But Negroes are overrepresented—with respect to the census population—in the sample as a whole, constituting 17.9 percent of the sample as compared to only 10.5 percent of the census population, in this age group.

sented wherever the disease seemed likely to be related to these factors.

	Total numbers		Percent in urban communities (over 2,500)		Percent in rural communities (under 2,500)	
	1940 census (15-24)	Health examination sample	1940 census (15-24)	Health examination sample	1940 census (15-24)	Health examination sample
Total youth.....	23,921,358	147,663	55.4	63.9	44.6	36.1
Males.....	11,872,545	75,998	53.3	60.0	46.7	40.0
Females.....	12,048,813	71,665	57.5	68.0	42.5	32.0
White youth.....	21,421,525	121,192	56.6	60.9	43.4	39.1
Males.....	10,692,273	63,485	54.5	57.8	45.5	42.2
Females.....	10,729,252	57,707	58.6	64.3	41.4	35.7
Negro youth.....	2,499,833	26,471	45.2	77.2	54.8	22.8
Males.....	1,180,272	12,513	42.0	70.7	58.0	29.3
Females.....	1,319,561	13,958	47.9	83.2	52.1	16.8

Summary of Appraisal

The sample studied is believed to be much the same in sex and color composition as was the total NYA youth population. No data are available to make age comparisons between this sample

and the NYA population, but the age distribution differs from that of the general population within the same limits. On the basis of geographic distribution, the sample is deficient in the numbers of examinations obtained from the New England and Middle Atlantic census regions, but includes a fairly good representation of all other regions. Data by size of community of residence are not available for the total NYA population and so the sample cannot be evaluated on this basis. However, compared with the 1940 census population in the age group 15 to 24, the sample would seem to be fairly well distributed between rural and urban groups, for white youth. Negro youth in rural areas were underrepresented.

It is believed that the sample was sufficiently representative to provide a valid picture of the general health level of NYA youth. Certain limitations which must be placed on generalizations drawn from these data are discussed elsewhere (see p. 4). It must be kept in mind that the present analysis presents the findings by specific sex, race, and region groupings and frequently by size of community groupings. Any deficiencies of the sample in these respects would have no effect on these specific findings.

APPENDIX B

NYA HEALTH EXAMINATION FORM

NYA Form 120

THIS RECORD IS
CONFIDENTIALFEDERAL SECURITY AGENCY
NATIONAL YOUTH ADMINISTRATION

HEALTH EXAMINATION RECORD

W. P. No. _____
Location _____
(City or town) (County)

Fill in every blank space; record all deviations from normal physical status; enter recommendations for follow-up on NYA Form 121

(Last name) (First name) (Middle name) (Present age) (Color) (Sex) (Identification No.)

(Home address: Street and number or R. F. D.) (City or town) (County) (State)

PAST MEDICAL HISTORY

Last time hospitalized: Reason for: _____; _____ years ago } X=never
 Last visit to (or from) a physician: Reason for: _____; _____ years ago } 0=within last 12 months
 Last regular visit to a dentist (exclusive of emergency visits necessitated by toothache); _____ years ago } If over 1 enter actual number

Illnesses experienced: (0=no; ✓=yes)

Pleurisy _____	Asthma or hay fever _____	Epilepsy _____	Dis. of genito-urinary sys. _____
Pneumonia _____	Tuberculosis _____	Disease of nervous system _____	Rheumatic heart disease _____
Sinus infection _____	Pellagra _____	Bone or muscle disease _____	Fractures _____
Disabling head colds _____	Digestive disturbances _____	Disease of the skin _____	Operations _____
Disabling chest colds _____	Arthritis, rheumatism _____	Disease of the mouth _____	Other (specify) _____
Extent of contact with tuberculosis _____			
Present complaints _____			

IMMUNITY STATUS—SMALLPOX AND TYPHOID

Attack	Smallpox: <input type="checkbox"/> no; <input type="checkbox"/> yes, ____ yrs. ago	Last previous vaccination	Smallpox: <input type="checkbox"/> no; <input type="checkbox"/> yes, ____ yrs. ago	Date vaccinated by or at request of examiner	Smallpox _____
	Typhoid: <input type="checkbox"/> no; <input type="checkbox"/> yes, ____ yrs. ago		Typhoid: <input type="checkbox"/> no; <input type="checkbox"/> yes, ____ yrs. ago		Typhoid _____

Last previous smallpox vaccination scar: Location: _____ Color: _____

HEALTH EXAMINATION *Enter "0" to mean function or organ normal or symptoms of stated affection not present; or "+" for slight, "++" for medium, or "+++" for extreme degree of abnormality, dysfunction or symptoms.

APPEARANCE	Encircle applicable term(s): Normal Pallid Cyanotic Jaundiced Emaciated Other (specify) _____
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MEASUREMENTS	Standing height _____ in. (Without shoes) (To nearest 1/4)	Weight _____ lb. (Without clothes) (To nearest 1/4)	Chest circumference _____	Full insp. _____ in. Full exp. _____ in.	To nearest 1/4": below breasts, or 2" below nipples.
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EYES	Distant vision	Unassisted: R: 20/____ L: 20/____ Assisted: R: 20/____ L: 20/____	Type of assistance (encircle)	Own glasses Pinhole Trial lenses	Color sense	Reaction _____ Tested with Yarns (encircle) Ishihara
	Evidence of: Blepharitis* ____ Discharge* ____ Trachoma* ____ Pterygium* ____ Strabismus* ____ Other (specify) _____					

EARS	Hearing (ordinary conversation)	R. _____ /20 ft. L. _____ /20 ft.	External canals	R. _____ L. _____	Drums	R: Normal Absent Perforated Retracted Dull L: Normal Absent Perforated Retracted Dull	(encircle)
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NOSE Evidence of: Chronic sinus infection* ____ Polypi* ____ Perforated septum* ____ Other (specify) _____

THROAT Tonsils: Encircle applicable term: Normal Diseased Completely removed Partially removed Pharynx (specify) _____

MOUTH	Upper	8 7 6 5 4 3 2 1	Right	Left	1 2 3 4 5 6 7 8	○ = Normal | = Unerupted — = Carious only + = Extracted == = Repaired only ⊕ = Replaced ≡ = Both carious and repaired
	Lower	8 7 6 5 4 3 2 1	Right	Left	1 2 3 4 5 6 7 8	
	← Mid-Line → ← Right → Left					

Tartar* ____ Gingivitis* ____ Pyorrhea* ____ Other (specify) _____

LUNGS	Inspection _____	Tuberculin test (old tuberculin used intracutaneously): Negative Positive (encircle)
	Palpation _____	
	Percussion _____	
	Auscultation _____	
	Ausc. cough _____	
Tentative or final diagnoses	Pleurisy* ____ Bronchitis* ____ Other (specify) _____	Chest x-ray <input type="checkbox"/> Not taken <input type="checkbox"/> Inactive pulmonary tuberculosis <input type="checkbox"/> Plate unreadable <input type="checkbox"/> Active pulmonary tuberculosis <input type="checkbox"/> Lungs clear
Because of physical findings is chest x-ray indicated? Yes No (encircle)		Active cases: <input type="checkbox"/> Minimal <input type="checkbox"/> Moderately advanced <input type="checkbox"/> Far advanced Other x-ray findings: <input type="checkbox"/> All negative <input type="checkbox"/> Described under "Remarks" <input type="checkbox"/> Described in separate report, which is attached hereto.

CIRCULATORY SYSTEM	Stethoscopic examination is required.		
	Heart murmur { <input type="checkbox"/> Yes { <input type="checkbox"/> No { <input type="checkbox"/> Functional <input type="checkbox"/> Organic	Heart irregularity -----	Organic heart disease: (encircle) Present Not present
	Blood pressure { Sys. ----- mm. Hg. Dia. ----- mm. Hg.	Pulse: { Before exercise ----- /min. Just after exercise ----- /min. Two minutes later ----- /min.	Exercise: Keeping one foot on chair seat, step up onto and down off of chair seat with other foot 15 times in 30 seconds. If examinee is excused from exercise give reasons under "Remarks"
ABDOMEN	Tenderness* ----- Liver* ----- Spleen* ----- If spleen is enlarged, how much ----- Other (specify) -----		
HERNIA	Record only existing hernias (i. e., exclude potential hernias). Inguinal hernia exists when inguinal ring is enlarged and there is felt a definite visceral impulse on coughing, which follows the examining finger on withdrawal.		
	Hernia (specify site) -----		
GENITO-URINARY	Urethral discharge* ----- Ulcerations* ----- Varicocele* ----- Hydrocele* ----- Prepuce* ----- Other (specify) -----		
ANO-RECTAL	Hemorrhoids* ----- Prolapse* ----- Ulcerations* ----- Fistula* ----- Other (specify) -----		
NERVOUS AND MENTAL	Describe any nervous or mental abnormality noted -----		
SKIN	Acne* ----- Edema* ----- Other (specify) -----		
ORTHOPEDIC IMPAIRMENTS	Enumerate lost parts (fingers, toes, hands, etc.) -----		
	Enumerate deformed, crippled or paralyzed parts -----		
OTHER	Describe any other defect noted -----		
LABORATORY	Blood serologic test:	Urinalysis:	Fecal:
	Date -----	Date -----	Date -----
	Name of test -----	Sugar* ----- Albumin* -----	Type of test -----
	Result* -----	Other -----	Result -----
REMARKS	-----		

RECOMMENDATIONS (✓=Recommended; +=Urgent.)

- | | | |
|--|---|---|
| <input type="checkbox"/> Refraction | <input type="checkbox"/> Mastoid operation | <input type="checkbox"/> Venereal disease treatment |
| <input type="checkbox"/> Dental care | <input type="checkbox"/> Hemorrhoidectomy | <input type="checkbox"/> Posture correction exercises |
| <input type="checkbox"/> Tonsillectomy | <input type="checkbox"/> Malaria treatment | <input type="checkbox"/> Special diet (specify) ----- |
| <input type="checkbox"/> Circumcision | <input type="checkbox"/> Hookworm treatment | <input type="checkbox"/> Study by a ----- specialist |
| <input type="checkbox"/> Hernia repair | <input type="checkbox"/> Surgery of eye or adnexa | <input type="checkbox"/> Additional diagnostic |
| <input type="checkbox"/> Other (specify) ----- | | procedures (specify) ----- |

HEALTH STATUS CLASSIFICATION: (Check classification recommended for this youth)

- ☐ Class I. Fit for any work or athletic activity; no defects, or only very slight defects.
- ☐ Class II. Fit for any work or athletic activity; abnormal conditions present can be corrected by proper measures (medical, dental, exercise, diet).
- ☐ Class III. Fit for almost any kind of employment or recreational activity; minor defects not thought to be amenable to correction but not severely handicapping. (Physician to indicate types of work to be avoided or to approve assignment.)
- ☐ Class IV. Fit only for certain kinds of employment or recreational activity. (Physician to approve assignment and to state whether there is necessity for medical supervision of the youth during employment.)
- ☐ Class V. Temporarily unfit for any employment or recreational activity; classification in this class implies subsequent reclassification to Class I, II, III, or IV after the termination of the temporary period of unemployability. (This form is not to be delayed pending such reclassification.)
- ☐ Class VI. Permanently, or for a prolonged period, unfit for any employment or recreational activity.

(Signed) -----
 (Physician) (Dentist) (Roentgenologist)

 (Specialist) (Date of completion of record)

APPENDIX C

LIST OF TABLES IN APPENDIX C

All tables show number and percent of NYA youth separately by sex, race, and—for white males—by age, for the United States. Youth of unknown sex and color totaling 276 were excluded from all tabulations. Males of unknown age totaling 331 were included in the 16 to 20 age group. "Other Races"—Chinese, Japanese, etc.—making up less than 0.5 percent of all NYA youth, were included as white. Certain of these tables present conditions which are not mutually exclusive since some youth had more than one of the specified defects or recommendations, as the case may be. In these tables the number of defects add to more than the number of youth with defects. Similarly, the percentages of youth having each of the specific defects plus the percentage having no defects add to more than 100 percent. The tables of which this is true have been designated by asterisks (*) in the list below.

Table No.	Title Abbreviated
1.	Youth examined in each State and region.
2.	Size of community of youth's residence.
3.	Age of youth examined.
4.	Health status and employability classification.
*5.	Recommendations specified by the examining physician.

Table No.	Title Abbreviated
6.	Recommendations for dental care, by whether dentist or physician performed oral examination.
*7.	Recommendations specified as urgent.
8.	Variation from weight standard.
9.	Number of carious teeth (found by dentists).
10.	Number of DMF teeth (found by dentists).
11.	Number of repaired teeth (found by dentists).
12.	Number of extracted teeth (found by dentists).
*13.	Abnormal mouth conditions (found by dentists).
14.	Snellen chart readings with vision unassisted.
*15.	Diseases of the eye.
16.	Findings of color sense examination.
17.	Results of auditory acuity tests.
18.	Condition of the ear drums.
*19.	Condition of the nose and accessory sinuses.
20.	Condition of the throat.
*21.	Chest X-ray findings.
22.	Findings of stethoscopic examination of the heart.
23.	Blood pressure readings, systolic and diastolic.
24.	Pulse rates.
25.	Results of blood serologic tests for syphilis.
*26.	Findings of genito-urinary examination.
*27.	Findings of ano-rectal examination.
*28.	Findings of examination of hernia.
*29.	Findings of examination of abdomen.
*30.	Orthopedic defects recorded.
*31.	Nervous and mental condition.
*32.	Condition of the skin.
33.	Findings of urinalysis.
*34.	Other diseases and dysfunctions.

THE HEALTH STATUS OF NYA YOUTH

TABLE 1.—Number and percent of NYA youth examined in each State and region

State and region	Total		Male						Female			
			White				Negro		White		Negro	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,960	100.0
New England.....	5,262	3.6	2,451	3.9	339	2.6	163	1.3	2,350	4.1	298	2.1
Maine.....	872	.6	560	.9	61	.5	1	-----	310	.6	1	-----
New Hampshire.....	100	.1	66	.1	17	.1	-----	-----	34	.1	-----	-----
Vermont.....	597	.4	304	.5	100	.8	-----	-----	292	.5	1	-----
Rhode Island.....	1,547	1.0	707	1.1	75	.6	72	.6	654	1.1	114	.8
Connecticut.....	2,146	1.5	814	1.3	86	.6	90	.7	1,060	1.8	182	1.3
Middle Atlantic.....	13,075	8.8	6,508	10.2	1,810	13.8	1,453	11.6	3,862	6.7	1,252	9.0
New York City.....	8,381	5.7	4,427	6.9	1,404	10.7	1,219	9.7	1,970	3.4	765	5.5
New York.....	1,216	.8	304	.5	26	.2	10	.1	855	1.5	47	.3
New Jersey.....	936	.6	541	.9	93	.7	53	.4	236	.4	106	.8
Pennsylvania.....	2,542	1.7	1,236	1.9	287	2.2	171	1.4	801	1.4	334	2.4
East North Central.....	30,607	20.6	12,230	19.3	2,127	16.1	2,995	23.9	11,783	20.4	3,599	25.7
Ohio.....	9,142	6.2	3,881	6.1	702	5.3	1,097	8.8	2,949	5.1	1,215	8.7
Indiana.....	1,673	1.1	702	1.1	119	.9	365	2.9	417	.7	189	1.4
Illinois.....	8,064	5.5	2,956	4.7	496	3.8	692	5.5	3,065	5.3	1,351	9.6
Michigan.....	8,768	5.8	3,561	5.6	686	5.2	835	6.7	3,577	6.2	795	5.7
Wisconsin.....	2,960	2.0	1,130	1.8	124	.9	6	-----	1,775	3.1	49	.3
West North Central.....	19,759	13.4	8,851	13.9	2,126	16.2	740	5.9	8,750	15.1	1,418	10.2
Minnesota.....	4,360	3.0	2,409	3.8	523	4.0	62	.5	1,832	3.1	57	.4
Iowa.....	5,923	4.0	2,812	4.4	707	5.4	78	.6	2,892	5.0	141	1.0
Missouri.....	5,588	3.8	1,807	2.9	342	2.6	525	4.2	2,084	3.6	1,169	8.4
North Dakota.....	1,069	.7	392	.6	125	1.0	-----	-----	677	1.2	-----	-----
South Dakota.....	573	.4	271	.4	109	.8	-----	-----	300	.5	2	-----
Nebraska.....	1,846	1.2	853	1.3	241	1.8	32	.3	921	1.6	40	.3
Kansas.....	400	.3	307	.5	79	.6	40	.3	44	.1	9	.1
South Atlantic.....	21,159	14.3	8,044	12.7	1,460	11.1	2,170	17.3	7,132	12.3	3,813	27.3
District of Columbia.....	1,370	.9	168	.3	41	.3	202	1.6	241	.4	759	5.4
Florida.....	1,066	.7	485	.8	58	.4	50	.4	385	.7	146	1.0
Delaware.....	565	.4	138	.2	25	.2	37	.3	299	.5	91	.7
Maryland.....	1,968	1.3	291	.5	39	.3	241	1.9	505	.9	931	6.7
Virginia.....	1,463	1.0	880	1.4	133	1.0	41	0.3	437	.8	105	.8
West Virginia.....	3,071	2.1	2,273	3.5	536	4.1	148	1.2	586	1.0	64	.5
North Carolina.....	3,872	2.6	1,247	2.0	211	1.7	389	3.1	1,840	3.1	396	2.8
South Carolina.....	2,383	1.6	589	.9	97	.7	212	1.7	1,118	1.9	464	3.3
Georgia.....	5,401	3.7	1,973	3.1	320	2.4	850	6.8	1,721	3.0	857	6.1
East South Central.....	15,785	10.7	4,650	7.3	1,108	8.4	2,671	21.3	6,985	12.1	1,479	10.6
Kentucky.....	2,786	1.9	1,148	1.8	221	1.7	177	1.4	1,256	2.2	205	1.5
Tennessee.....	325	.2	118	.2	25	.2	6	-----	201	.3	-----	-----
Alabama.....	9,044	6.1	2,187	3.4	534	4.0	1,786	14.3	3,962	6.9	1,109	7.9
Mississippi.....	3,630	2.5	1,197	1.9	328	2.5	702	5.6	1,566	2.7	165	1.2
West South Central.....	21,445	14.5	11,566	18.2	2,140	16.3	1,944	15.5	6,307	10.9	1,628	11.7
Arkansas.....	3,318	2.2	2,075	3.3	501	3.8	194	1.5	976	1.7	73	.5
Louisiana.....	3,550	2.4	1,230	1.9	229	1.7	489	3.9	1,221	2.1	610	4.4
Oklahoma.....	3,305	2.2	2,076	3.3	584	4.5	203	1.6	940	1.6	86	.6
Texas.....	11,272	7.7	6,185	9.7	826	6.3	1,058	8.5	3,170	5.5	859	6.2
Rocky Mountain.....	5,993	4.1	3,064	4.8	635	4.8	150	1.2	2,690	4.7	89	.6
Montana.....	625	.4	292	.5	63	.5	2	-----	329	.6	2	-----
Idaho.....	125	.1	32	-----	6	.1	-----	-----	93	.2	-----	-----
Wyoming.....	372	.3	110	.2	18	.1	1	-----	261	.5	-----	-----
Colorado.....	1,240	.8	609	1.0	125	.9	25	.2	581	1.0	25	.2
New Mexico.....	1,568	1.1	1,077	1.6	260	2.0	8	.1	481	.8	2	-----
Arizona.....	1,542	1.0	627	1.0	103	.8	114	.9	741	1.3	60	.4
Utah.....	371	.3	295	.5	56	.4	-----	-----	76	.1	-----	-----
Nevada.....	150	.1	22	-----	4	-----	-----	-----	128	.2	-----	-----
Pacific.....	14,728	10.0	6,188	9.7	1,413	10.7	246	2.0	7,901	13.7	393	2.8
Washington.....	4,882	3.3	2,130	3.3	484	3.7	28	.2	2,698	4.7	26	.2
Oregon.....	2,413	1.6	1,258	2.0	267	2.0	6	.1	1,137	2.0	12	.1
California.....	7,433	5.1	2,800	4.4	662	5.0	212	1.7	4,066	7.0	355	2.5

TABLE 2.—Number and percent of NYA youth examined in the United States according to size of community of youth's residence

Size of community of youth's residence	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	-----	63,552	-----	13,158	-----	12,532	-----	57,760	-----	13,969	-----
Unknown.....	150	-----	67	-----	12	-----	19	-----	53	-----	11	-----
Total known youth.....	147,663	100.0	63,485	100.0	13,146	100.0	12,513	100.0	57,707	100.0	13,958	100.0
Rural (under 2,500 population).....	53,363	36.1	26,760	42.2	5,817	44.3	3,662	29.3	20,598	35.7	2,343	16.8
2,500 to 4,999.....	5,331	3.6	2,538	4.0	462	3.5	366	2.9	2,204	3.8	223	1.6
5,000 to 9,999.....	7,557	5.1	3,850	6.1	700	5.3	326	2.6	3,107	5.4	274	2.0
10,000 to 24,999.....	9,034	6.1	3,885	6.1	759	5.8	889	7.1	3,925	6.8	335	2.4
25,000 to 29,999.....	2,152	1.5	908	1.4	157	1.2	185	1.5	996	1.7	63	.5
30,000 to 49,999.....	7,607	5.2	3,357	5.3	618	4.7	381	3.1	3,400	5.9	469	3.4
50,000 to 99,999.....	10,233	6.9	3,716	5.8	630	4.8	1,006	8.0	4,349	7.5	1,162	8.3
100,000 to 249,999.....	9,413	6.4	3,707	5.8	645	4.9	638	5.1	4,215	7.3	853	6.1
250,000 to 499,999.....	18,644	12.6	7,025	11.1	1,204	9.1	1,775	14.2	7,007	12.2	2,837	20.3
500,000 and over.....	24,329	16.5	7,739	12.2	2,154	16.4	3,285	26.2	7,906	13.7	5,399	38.6

TABLE 3.—Number and percent of NYA youth examined in the United States by age of youth

Age, in years	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	-----	63,552	-----	13,158	-----	12,532	-----	57,760	-----	13,969	-----
Unknown.....	785	-----	331	-----		-----	43	-----	362	-----	49	-----
Total—known age.....	147,028	100.0	63,221	100.0	13,158	100.0	12,489	100.0	57,398	100.0	13,920	100.0
16.....	8,108	5.5	4,845	7.6			868	7.0	2,046	3.7	349	2.5
17.....	22,752	15.5	11,858	18.8			2,020	16.2	7,636	13.3	1,238	8.9
18.....	32,969	22.4	14,077	22.3			2,889	23.1	13,234	23.0	2,769	19.9
19.....	29,240	19.9	11,307	17.9			2,311	18.5	12,694	22.0	2,928	21.0
20.....	20,633	14.0	7,976	12.6			1,686	13.5	8,584	15.0	2,387	17.1
21.....	13,772	9.4	5,269	8.3	5,269	40.1	1,176	9.4	5,575	9.7	1,752	12.6
22.....	9,000	6.1	3,529	5.6	3,529	26.8	713	5.7	3,637	6.2	1,221	8.8
23.....	6,398	4.4	2,556	4.0	2,556	19.4	524	4.2	2,487	4.3	831	6.0
24.....	4,156	2.8	1,804	2.9	1,804	13.7	302	2.4	1,605	2.8	445	3.2
Median age.....	19.33		19.07		22.37		19.20		19.46		19.89	

TABLE 4.—Number and percent of NYA youth examined in the United States by health status and employability classification assigned by the examining physician

Health Status and employability classification ¹	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined ²	147,663		63,485		13,146		12,513		57,707		13,958	
Unknown Health status.....	1,096		393		83		134		442		127	
Total known youth.....	146,567	100.0	63,092	100.0	13,063	100.0	12,379	100.0	57,265	100.0	13,831	100.0
Class I.....	20,109	13.7	8,628	13.7	1,544	11.8	1,754	14.2	8,235	14.4	1,492	10.8
Class II.....	78,350	53.4	33,548	53.1	6,142	47.0	6,746	54.4	30,403	53.0	7,653	55.2
Class III.....	33,114	22.6	14,014	22.2	3,091	23.7	2,362	19.1	13,743	24.0	2,995	21.7
Class IV.....	10,650	7.3	5,188	8.2	1,801	13.8	893	7.2	3,523	6.2	1,046	7.6
Class V.....	3,947	2.7	1,491	2.4	395	3.0	591	4.8	1,272	2.2	593	4.3
Class VI.....	397	.3	223	.4	90	.7	33	.3	99	.2	52	.4

¹ Class I—Fit for any work or athletic activity; no defects, or only very slight defects.

Class II—Fit for any work or athletic activity; abnormal conditions present can be corrected by proper measures (medical, dental, exercise, diet).

Class III—Fit for almost any kind of employment or recreational activity; minor defects not thought to be amenable to correction but not severely handicapping. (Physician to indicate types of work to be avoided or to approve assignment.)

Class IV—Fit only for certain kinds of employment or recreational activity. (Physician to approve assignment and to state whether there is necessity for medical supervision of the youth during employment.)

Class V—Temporarily unfit for any employment or recreational activity; classification in this class implies subsequent reclassification to class I, II, III, or IV after termination of the temporary period of unemployability.

Class VI—Permanently, or for a prolonged period, unfit for NYA employment or recreational activity.

² 150 youth for whom size of community of residence was unknown are excluded from this table.

TABLE 5.—Number and percent of NYA youth examined in the United States by the recommendations specified by the examining physician, exclusive of dental care recommendation

Specific recommendations made by examiner	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined ¹	147,663	100.0	63,485	100.0	13,146	100.0	12,513	100.0	57,707	100.0	13,958	100.0
Refraction.....	29,096	19.7	11,159	17.6	2,714	20.6	1,993	15.9	12,969	22.5	2,975	21.3
Tonsillectomy.....	28,592	19.4	12,110	19.1	2,207	16.8	2,613	20.9	10,634	18.4	3,235	23.2
Circumcision.....	4,898	3.3	3,582	5.7	574	4.4	1,316	10.5				
Hernia repair.....	1,457	1.0	1,103	1.7	333	2.5	220	1.8		.1	64	.6
Mastoid operation.....	1,63		85	.1	3		2		23		3	
Hemorrhoidectomy.....	766	.5	262	.4	98	.7	66	.5	275	.6	163	1.2
Malaria treatment.....	49		25		8		2		19		3	
Hookworm treatment.....	3,069	2.1	1,548	2.4	340	2.6	280	2.2	1,193	2.1	48	.3
Surgery of eye or adnexa.....	338	.2	168	.3	51	.4	35	.3	106	.2	29	.2
Venereal disease treatment.....	2,583	1.7	258	.4	95	.7	765	6.1	391	.7	1,169	8.4
Posture correction exercise.....	3,392	2.3	1,752	2.8	367	2.8	183	1.5	1,175	2.0	282	2.0
Special diet.....	17,818	12.1	6,149	9.7	1,167	8.9	1,052	8.4	8,214	14.2	2,403	17.2
Study by a specialist.....	16,212	11.0	6,504	10.2	1,707	13.0	1,135	9.1	6,391	11.1	2,182	15.6
Additional diagnostic pro- cedure.....	20,334	13.8	7,377	11.6	1,719	13.1	1,800	14.4	8,631	15.0	2,526	18.1
Other major surgery.....	819	.5	418	.7	112	.9	51	.4	293	.5	57	.4
Other minor surgery.....	1,757	1.2	1,023	1.6	223	1.7	109	.9	516	.9	109	.8
Minor nonsurgical procedure.....	8,115	5.5	4,256	6.7	1,006	7.6	515	4.1	2,942	5.1	402	2.9
Radiation therapy.....	17		7		3		1		8		1	
All other repeated medical therapy.....	4,008	2.7	1,547	2.4	319	2.4	246	2.0	1,910	3.3	305	2.2
Unspecified type of treatment.....	4,663	3.2	1,675	2.6	355	2.7	458	3.7	2,060	3.6	470	3.4

¹ 150 youth for whom size of community of residence was unknown are excluded from this table.

TABLE 6.—Number and percent of NYA youth examined in the United States by whether or not dental care was recommended, separate for youth examined by a physician and youth examined by a dentist

Examiner and recommendation	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total: Examination by physician or dentist: Number of youth examined ¹	147,663	100.0	63,485	100.0	13,146	100.0	12,513	100.0	57,707	100.0	13,958	100.0
Dental care recommended.....	97,039	65.7	42,084	66.3	8,884	67.6	8,590	68.6	36,236	62.8	10,129	72.6
Dental care not recommended.....	50,624	34.3	21,401	33.7	4,262	32.4	3,923	31.4	21,471	37.2	3,829	27.4
Examination by dentist: Number of youth examined.....	60,107	100.0	27,926	100.0	6,003	100.0	4,738	100.0	22,161	100.0	5,282	100.0
Dental care recommended.....	50,775	84.5	23,487	84.1	4,969	82.8	3,896	82.2	18,752	84.6	4,640	87.8
Dental care not recommended.....	9,332	15.5	4,439	15.9	1,034	17.2	842	17.8	3,409	15.4	642	12.2
Examination by physician: Number of youth examined.....	87,556	100.0	35,559	100.0	7,143	100.0	7,775	100.0	35,546	100.0	8,676	100.0
Dental care recommended.....	46,264	52.8	18,597	52.3	3,915	54.8	4,694	60.4	17,484	49.2	5,489	63.3
Dental care not recommended.....	41,292	47.2	16,962	47.7	3,228	45.2	3,081	39.6	18,062	50.8	3,187	36.7

¹ Excludes 150 youth for whom size of community of residence was unknown, 17 of whom were examined by a dentist.

TABLE 7.—Number and percent of NYA youth examined in the United States by the recommendations specified as urgent by the examining physician

Specific urgent recommendations	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined ¹	147,663	100.0	63,485	100.0	13,146	100.0	12,513	100.0	57,707	100.0	13,958	100.0
Refraction.....	3,759	2.5	1,333	2.1	319	2.4	283	2.3	1,701	2.9	442	3.2
Dental care (based on all youth examined).....	12,630	8.5	5,309	8.3	1,227	9.3	1,103	8.8	4,676	8.1	1,551	11.1
Tonsillectomy.....	2,477	1.7	993	1.6	161	1.2	279	2.2	885	1.5	320	2.3
Circumcision.....	380	.3	269	.4	34	.3	111	.9				
Hernia repair.....	175	.1	137	.2	44	.3	29	.2	6		3	
Mastoid operation.....	11		6		1		1		4			
Hemorrhoidectomy.....	43		15		5		5		9		14	.1
Malaria treatment.....	6		3		1				3			
Hookworm treatment.....	713	.5	352	.6	88	.7	35	.3	322	.6	4	
Surgery of eye or adnexa.....	29		19		6		2		6		2	
Venereal disease treatment.....	475	.3	44	.1	16	.1	173	1.4	90	.2	168	1.2
Posture correction exercise.....	182	.1	68	.1	19	.1	15	.1	81	.2	18	.1
Special diet.....	541	.4	167	.3	34	.3	24	.2	282	.6	68	.5
Study by a specialist.....	644	.4	292	.5	76	.6	42	.3	258	.6	52	.4
Additional diagnostic procedure.....	403	.3	146	.2	33	.3	22	.2	198	.3	37	.3
Other major surgery.....	70	.1	30		9	.1	9	.1	25		6	.1
Other minor surgery.....	84	.1	51	.1	12	.1	6	.1	24		3	
Minor nonsurgical procedure.....	62		27		8	.1	2		30	.1	3	
Radiation therapy.....	4		1				1		1		1	
All other repeated medical therapy.....	285	.2	121	.2	18	.1	27	.2	105	.2	32	.2
Unspecified type of treatment.....	122	.1	52	.1	13	.1	17	.1	46	.1	7	.1

¹ Excludes 150 youth for whom size of community of residence was unknown.

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TABLE 8.—Number and percent of NYA youth examined in the United States by variation from weight standard

Variation from standard weight ¹	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined ²	147,663		63,485		13,146		12,513		57,707		13,958	
Unknown	2,366		966		228		302		891		207	
Total known youth	145,297	100.0	62,519	100.0	12,920	100.0	12,211	100.0	56,816	100.0	13,751	100.0
25 percent or more below	1,448	1.0	410	.6	132	1.0	50	.4	841	1.5	147	1.1
20 percent (15-24) below	15,503	10.7	6,004	9.6	1,485	11.5	697	5.7	7,420	13.1	1,382	10.0
10 percent (5-14) below	45,451	31.3	20,746	33.2	4,355	33.7	3,462	28.4	17,171	30.2	4,072	29.6
4 percent below to 4 percent above	44,383	30.5	20,718	33.1	3,970	30.8	4,715	38.6	15,223	26.8	3,727	27.1
10 percent (5-14) above	22,180	15.3	9,481	15.2	1,809	14.0	2,330	19.1	8,165	14.4	2,204	16.0
20 percent (15-24) above	8,304	5.7	2,961	4.7	675	5.2	641	5.2	3,668	6.4	1,034	7.5
30 percent (25-34) above	3,586	2.5	1,098	1.8	235	1.8	179	1.5	1,802	3.2	507	3.7
40 percent (35-44) above	1,926	1.3	548	.9	130	1.0	69	.6	1,025	1.8	284	2.1
45 percent and more above	2,516	1.7	553	.9	129	1.0	68	.5	1,501	2.6	394	2.9

¹ The standard weights selected were specific for height, sex, and age. They were based on the findings of the 1929 Supplementary Medical Impairment Study by the Actuarial Society of America and the Association of Life Insurance Medical Directors.

² Excludes 150 youth for whom size of community of residence was unknown.

TABLE 9.—Number and percent of NYA youth examined by dentists in the United States by the number of carious teeth found

Number of carious teeth	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined by dentist 1.....	60,030	100.0	27,885	100.0	5,987	100.0	4,726	100.0	22,139	100.0	5,280	100.0
Youth with no carious teeth.....	10,178	17.0	4,680	16.8	1,107	18.5	922	19.5	3,782	17.1	794	15.0
Youth with carious teeth.....	49,852	83.0	23,205	83.2	4,880	81.5	3,804	80.5	18,357	82.9	4,486	85.0
One.....	6,382	10.6	2,874	10.3	612	10.2	485	10.3	2,511	11.4	512	9.7
Two.....	6,357	10.6	2,760	9.9	610	10.2	499	10.6	2,521	11.4	577	10.9
Three.....	5,596	9.3	2,503	9.0	532	8.9	429	9.1	2,127	9.6	537	10.2
Four.....	5,383	9.0	2,407	8.6	470	7.9	434	9.2	2,035	9.2	507	9.6
Five.....	4,629	7.7	2,129	7.6	407	6.8	347	7.3	1,687	7.6	466	8.8
Six.....	4,292	7.1	2,034	7.3	398	6.6	335	7.1	1,517	6.9	406	7.7
Seven.....	3,573	6.0	1,714	6.2	352	5.9	266	5.6	1,259	5.7	334	6.3
Eight.....	3,172	5.3	1,465	5.3	281	4.7	265	5.6	1,170	5.3	272	5.2
Nine.....	2,401	4.0	1,144	4.1	241	4.0	183	3.9	870	3.9	204	3.9
Ten.....	1,858	3.1	902	3.2	160	2.7	134	2.8	647	2.9	175	3.3
Eleven.....	1,471	2.5	761	2.7	175	2.9	95	2.0	487	2.2	128	2.4
Twelve.....	1,181	2.0	623	2.2	131	2.2	84	1.8	379	1.7	95	1.8
Thirteen.....	858	1.4	435	1.6	98	1.6	51	1.1	300	1.4	72	1.4
Fourteen.....	722	1.2	387	1.4	98	1.6	58	1.2	226	1.0	51	1.0
Fifteen.....	524	.9	279	1.0	67	1.1	38	.8	161	.7	46	.9
Sixteen.....	382	.6	203	.7	53	.9	32	.7	111	.5	36	.7
Seventeen.....	310	.5	163	.6	47	.8	19	.4	105	.5	23	.4
Eighteen.....	211	.4	107	.4	41	.7	15	.3	73	.3	16	.3
Nineteen.....	166	.3	90	.3	34	.6	9	.2	58	.3	9	.2
Twenty.....	100	.2	61	.2	17	.3	9	.2	26	.1	4	.1
Twenty-one.....	88	.1	44	.2	13	.2	8	.2	28	.1	8	.2
Twenty-two.....	61	.1	36	.1	13	.2	2		20	.1	3	
Twenty-three.....	41	.1	24	.1	7	.1	3	.1	13	.1	1	
Twenty-four.....	29		21	.1	5	.1	1		5		2	
Twenty-five.....	20		13	.1	5	.1			6		1	
Twenty-six.....	12		5		2		1		5		1	
Twenty-seven.....	8		4		3	.1			4			
Twenty-eight.....	7		6		2				1			
Twenty-nine.....	5		3		1				2			
Thirty.....	3		2						1			
Thirty-one.....	4		3		2				1			
Thirty-two.....	6		3		3	.1	2		1			
Average number of carious teeth per 100 youth.....	471.9		492.1		502.3		447.9		451.6		472.0	

¹ Excludes 77 youth for whom dental condition was not recorded, and 17 youth for whom size of community of residence was unknown.

TABLE 10.—Number and percent of NYA youth examined by dentists in the United States by the number of D. M. F. teeth reported

Number of D. M. F. teeth ¹	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined by dentist ²	60,047	100.0	27,893	100.0	5,988	100.0	4,729	100.0	22,145	100.0	5,280	100.0
Number D. M. F. teeth	3,515	5.9	1,660	6.0	285	4.7	583	12.3	858	3.9	414	7.8
One	2,351	3.9	1,103	4.0	183	3.0	307	6.5	653	3.0	288	5.5
Two	2,935	4.9	1,365	4.9	260	4.3	358	7.6	874	4.0	338	6.4
Three	3,029	5.1	1,399	5.0	253	4.2	356	7.5	872	4.0	402	7.6
Four	3,478	5.8	1,688	5.7	295	4.9	409	8.6	1,047	4.7	434	8.2
Five	3,521	5.9	1,628	5.8	280	4.7	351	7.4	1,125	5.1	417	7.9
Six	3,740	6.2	1,774	6.4	317	5.3	373	7.9	1,204	5.4	389	7.4
Seven	3,769	6.3	1,851	6.6	352	5.9	316	6.7	1,240	5.6	362	6.8
Eight	4,164	6.9	1,970	7.1	372	6.2	333	7.0	1,489	6.7	372	7.0
Nine	3,860	6.4	1,822	6.5	390	6.5	259	5.5	1,443	6.5	336	6.4
Ten	3,550	5.9	1,688	6.1	358	6.0	201	4.2	1,369	6.2	292	5.5
Eleven	3,232	5.4	1,488	5.3	307	5.1	174	3.7	1,350	6.1	220	4.2
Twelve	2,899	4.8	1,311	4.7	283	4.7	141	3.0	1,243	5.6	204	3.9
Thirteen	2,543	4.2	1,174	4.2	276	4.6	117	2.5	1,069	4.8	183	3.5
Fourteen	2,141	3.6	1,006	3.6	234	3.9	93	1.9	913	4.1	129	2.4
Fifteen	1,911	3.2	865	3.1	213	3.6	77	1.6	881	4.0	88	1.7
Sixteen	1,692	2.8	759	2.7	213	3.6	67	1.4	777	3.5	89	1.7
Seventeen	1,441	2.4	615	2.2	180	3.0	52	1.1	694	3.1	80	1.5
Eighteen	1,196	2.0	543	1.9	157	2.6	36	.8	561	2.5	56	1.1
Nineteen	1,027	1.7	428	1.5	139	2.3	27	.6	517	2.3	55	1.0
Twenty	795	1.3	357	1.3	111	1.9	28	.6	380	1.7	30	.6
Twenty-one	688	1.2	315	1.1	91	1.5	24	.5	327	1.5	22	.4
Twenty-two	535	.9	259	.9	77	1.3	13	.3	244	1.1	19	.4
Twenty-three	444	.7	198	.7	63	1.1	9	.2	222	1.0	15	.3
Twenty-four	358	.6	164	.6	62	1.0	5	.1	180	.8	9	.2
Twenty-five	273	.5	126	.5	46	.8	3	.1	132	.6	12	.2
Twenty-six	245	.4	110	.4	45	.8	4	.1	120	.6	11	.2
Twenty-seven	162	.3	69	.3	28	.5	3	.1	86	.4	4	.1
Twenty-eight	141	.2	65	.2	25	.4	3	.1	72	.3	1	—
Twenty-nine	101	.2	52	.2	22	.4	1	—	47	.2	1	—
Thirty	82	.1	36	.1	13	.2	1	—	45	.2	—	—
Thirty-one	55	.1	26	.1	12	.2	—	—	27	.1	2	—
Thirty-two	93	.2	45	.2	27	.5	4	.1	40	.2	4	.1
Thirty-three	24	—	12	.1	6	.1	1	—	11	.1	—	—
Thirty-four	19	—	6	—	1	—	—	—	13	.1	—	—
Thirty-five	11	—	5	—	5	.1	—	—	6	—	—	—
Thirty-six	6	—	3	—	1	—	—	—	3	—	—	—
Thirty-seven	4	—	—	—	—	—	—	—	4	—	—	—
Thirty-eight	4	—	1	—	1	—	—	—	1	—	2	—
Thirty-nine	7	—	4	—	4	.1	—	—	3	—	—	—
Forty	6	—	3	—	2	—	—	—	3	—	—	—
Average number of D. M. F. teeth per 100 youth	918.0		909.7		1047.5		631.8		1036.5		720.5	

¹ The number of D. M. F. teeth, a measure of the total caries experience, past and present, is the summation of the numbers of teeth that are decayed, missing, or filled.

² Excludes 77 youths for whom dental condition was not recorded.

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TABLE 11.—Number and percent of NYA youth examined by dentists in the United States by the number of repaired teeth found

Number of repaired teeth	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined by dentist ¹	60,047	100.0	27,893	100.0	5,988	100.0	4,729	100.0	22,145	100.0	5,280	100.0
No repaired teeth.....	29,014	48.3	14,170	50.8	2,680	44.8	3,474	73.5	7,860	35.5	3,510	66.5
One or more repaired teeth.....	31,033	51.7	13,723	49.2	3,308	55.2	1,255	26.5	14,285	64.5	1,770	33.5
One.....	5,163	8.6	2,392	8.6	499	8.3	416	8.8	1,824	8.2	531	10.0
Two.....	4,185	7.0	1,912	6.9	393	6.6	290	6.1	1,629	7.3	354	6.7
Three.....	3,276	5.5	1,519	5.4	339	5.7	159	3.4	1,389	6.3	209	4.0
Four.....	3,023	5.0	1,431	5.1	326	5.4	114	2.4	1,300	5.9	178	3.4
Five.....	2,370	3.9	1,099	3.9	249	4.2	73	1.5	1,087	4.9	111	2.1
Six.....	2,259	3.8	958	3.4	248	4.1	65	1.4	1,161	5.2	75	1.4
Seven.....	1,954	3.3	844	3.0	206	3.4	35	.7	993	4.8	82	1.5
Eight.....	1,739	2.9	768	2.8	190	3.2	22	.5	896	4.0	53	1.0
Nine.....	1,442	2.4	586	2.1	147	2.5	21	.5	792	3.6	43	.8
Ten.....	1,253	2.1	497	1.8	131	2.2	17	.4	710	3.2	29	.5
Eleven.....	1,019	1.7	426	1.5	133	2.2	11	.2	556	2.5	26	.5
Twelve.....	827	1.4	360	1.1	94	1.6	11	.2	496	2.2	20	.4
Thirteen.....	599	1.0	222	.8	61	1.0	4	.1	356	1.6	17	.3
Fourteen.....	515	.9	219	.8	73	1.2	5	.1	277	1.3	14	.3
Fifteen.....	371	.6	130	.5	38	.6	3	.1	229	1.0	9	.2
Sixteen.....	345	.6	139	.5	53	.9	3	.1	194	.9	9	.2
Seventeen.....	221	.4	85	.3	34	.6	—	—	133	.6	3	.1
Eighteen.....	135	.2	55	.2	25	.4	2	—	77	.3	1	—
Nineteen.....	108	.2	35	.1	14	.2	2	—	68	.3	3	.1
Twenty.....	56	.1	22	.1	11	.2	1	—	32	.1	1	—
Twenty-one.....	42	.1	14	.1	8	.1	—	—	27	.1	1	—
Twenty-two.....	33	—	19	.1	10	.2	—	—	14	.1	—	—
Twenty-three.....	17	—	11	—	4	.1	—	—	6	—	—	—
Twenty-four.....	20	—	9	—	6	.1	—	—	11	—	—	—
Twenty-five.....	6	—	5	—	3	.1	—	—	1	—	—	—
Twenty-six.....	8	—	5	—	2	—	—	—	2	—	—	—
Twenty-seven.....	2	—	1	—	—	—	1	—	1	—	—	—
Twenty-eight.....	8	—	4	—	2	—	—	—	4	—	—	—
Twenty-nine.....	—	—	—	—	—	—	—	—	—	—	—	—
Thirty.....	2	—	2	—	1	—	—	—	—	—	—	—
Thirty-one.....	1	—	—	—	—	—	—	—	1	—	—	—
Thirty-two.....	34	—	14	.1	8	.1	—	—	19	.1	1	—
Average number of repaired teeth per 100 youth.....	291.1	—	265.6	—	340.1	—	85.7	—	406.5	—	126.5	—

¹ Excludes 77 youths for whom dental condition was not recorded.

TABLE 12.—Number and percent of NYA youth examined by dentists in the United States by the number of extracted teeth noted

Number of extracted teeth	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined by dentist ¹	60,047	100.0	27,893	100.0	5,988	100.0	4,729	100.0	22,145	100.0	5,280	100.0
Youth with no extracted teeth	26,166	43.7	12,447	44.6	2,188	36.6	2,667	56.5	8,459	38.2	2,593	49.1
Youth with one or more extracted	33,881	56.3	15,446	55.4	3,800	63.4	2,062	43.5	13,686	61.8	2,687	50.9
One	10,869	18.1	4,959	17.8	1,022	17.1	873	18.5	4,016	18.1	1,021	19.4
Two	9,112	15.2	4,075	14.6	899	15.0	591	12.5	3,661	16.5	785	14.9
Three	5,355	8.9	2,531	9.1	666	11.1	270	5.7	2,190	9.9	364	6.9
Four	3,559	5.9	1,644	5.9	431	7.2	148	3.1	1,529	6.9	238	4.5
Five	2,008	3.4	857	3.1	253	4.2	81	1.7	959	4.3	111	2.1
Six	1,139	1.9	522	1.9	178	3.0	38	.8	522	2.4	57	1.1
Seven	648	1.1	307	1.1	97	1.6	19	.4	284	1.3	38	.7
Eight	418	.7	187	.7	70	1.2	14	.3	188	.9	29	.6
Nine	251	.4	125	.5	56	.9	14	.3	97	.4	15	.3
Ten	164	.3	75	.3	42	.7	6	.1	76	.4	7	.1
Eleven	105	.2	46	.2	26	.4	1	—	49	.2	9	.2
Twelve	59	.1	29	.1	14	.2	1	—	27	.1	2	—
Thirteen	52	.1	18	.1	7	.1	4	.1	23	.1	7	.1
Fourteen	23	—	9	—	6	.1	—	—	13	.1	1	—
Fifteen	17	—	9	—	4	.1	—	—	8	—	—	—
Sixteen	19	—	8	—	5	.1	1	—	9	.1	1	—
Seventeen	11	—	8	—	6	.1	1	—	2	—	—	—
Eighteen	16	—	6	—	2	—	—	—	10	.1	—	—
Nineteen	12	—	9	—	5	.1	—	—	3	—	—	—
Twenty	11	—	3	—	3	.1	—	—	8	—	—	—
Twenty-one	8	—	4	—	—	—	—	—	3	—	1	—
Twenty-two	2	—	1	—	—	—	—	—	—	—	1	—
Twenty-three	3	—	2	—	2	—	—	—	1	—	—	—
Twenty-four	—	—	—	—	—	—	—	—	—	—	—	—
Twenty-five	—	—	—	—	—	—	—	—	—	—	—	—
Twenty-six	7	—	4	—	1	—	—	—	3	—	—	—
Twenty-seven	—	—	—	—	—	—	—	—	—	—	—	—
Twenty-eight	—	—	—	—	—	—	—	—	—	—	—	—
Twenty-nine	1	—	1	—	—	—	—	—	—	—	—	—
Thirty	2	—	2	—	—	—	—	—	—	—	—	—
Thirty-one	—	—	—	—	—	—	—	—	—	—	—	—
Thirty-two	10	—	5	—	5	.1	—	—	5	—	—	—
Average number of extracted teeth per 100 youth	155.3	—	153.0	—	205.9	—	97.9	—	178.1	—	123.5	—

¹ Excludes 77 youth for whom dental condition was not recorded.

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TABLE 13.—Number and percent of NYA youth examined by dentists in the United States by abnormal mouth conditions found (except carious teeth)

Abnormal mouth conditions	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined ¹	60,124	100.0	27,934	100.0	6,004	100.0	4,741	100.0	22,167	100.0	5,282	100.0
Youth with no defects.....	38,710	64.4	17,553	62.8	3,435	57.2	2,656	56.0	15,274	68.9	3,227	61.1
Youth with defects.....	21,414	35.6	10,381	37.2	2,569	42.8	2,085	44.0	6,893	31.1	2,055	38.9
Tartar, except slight.....	7,667	12.7	4,323	15.5	1,170	19.5	677	14.3	2,116	9.5	551	10.4
Slight gingivitis.....	11,215	18.6	5,042	18.0	1,207	20.1	1,136	24.0	3,917	17.7	1,120	21.2
Gingivitis, except slight.....	3,185	5.3	1,772	6.3	477	8.0	289	6.1	889	4.0	235	4.4
Pyorrhea.....	2,634	4.4	1,255	4.5	432	7.2	395	8.3	671	3.0	313	5.9
Oral abscess.....	290	.5	116	.4	20	.3	35	.7	87	.4	61	1.2
Malocclusion.....	1,117	1.9	405	1.4	92	1.5	96	2.0	481	2.2	135	2.6
Vincent's angina.....	149	.2	70	.3	24	.4	12	.3	60	.3	7	.1
All other abnormal conditions of lips.....	18	-----	13	.1	3	.1	-----	-----	4	-----	1	-----
All other abnormal conditions of teeth (except caries).....	3,047	5.1	1,288	4.6	284	4.7	372	7.8	955	4.3	432	8.2
All other abnormal conditions of the Buccal cavity.....	321	.6	156	.6	45	.7	29	.6	95	.4	41	.8
Total defects per 100 youth.....	49.3		51.7		62.5		64.1		41.8		54.8	

¹ Based only upon those youth whose oral examination was performed by a dentist.

TABLE 14.—Number and percent of NYA youth examined in the United States by Snellen Chart readings with vision unassisted

Snellen Chart reading, unassisted	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813		63,552		13,158		12,532		57,760		13,969	
POORER EYE												
Unknown reading.....	1,589		660		175		136		632		161	
Known reading.....	146,224	100.0	62,892	100.0	12,983	100.0	12,396	100.0	57,128	100.0	13,808	100.0
20/20, or under.....	93,438	63.9	42,188	67.1	7,973	61.4	8,768	70.7	33,744	59.1	8,738	63.3
20/25.....	9,408	6.4	3,732	5.9	748	5.8	720	5.8	3,952	6.9	1,004	7.3
20/30.....	16,497	11.3	5,977	9.5	1,395	10.7	1,327	10.7	7,252	12.7	1,941	14.1
20/40.....	6,996	4.8	2,674	4.3	669	5.2	500	4.0	3,127	5.5	695	5.0
20/50.....	3,900	2.7	1,556	2.5	347	2.7	236	1.9	1,731	3.0	377	2.7
20/70.....	4,227	2.9	1,689	2.7	428	3.3	251	2.0	1,916	3.4	371	2.7
20/100.....	4,135	2.8	1,731	2.7	453	3.5	195	1.6	1,967	3.4	242	1.8
20/200 or over.....	6,688	4.6	2,834	4.5	818	6.3	308	2.5	3,179	5.6	367	2.6
Blind.....	641	.4	393	.6	120	.9	72	.6	135	.2	41	.3
Abnormal, degree unknown.....	294	.2	118	.2	32	.2	19	.2	125	.2	32	.2
BETTER EYE												
Unknown reading.....	1,251		482		129		103		525		141	
Known reading.....	146,562	100.0	63,070	100.0	13,029	100.0	12,429	100.0	57,235	100.0	13,828	100.0
20/20, or under.....	110,297	75.3	49,611	78.7	9,653	74.1	10,040	80.8	40,299	70.4	10,347	74.8
20/25.....	7,639	5.2	2,809	4.5	588	4.5	600	4.8	3,388	5.9	842	6.1
20/30.....	12,586	8.6	4,450	7.1	1,102	8.5	925	7.4	5,848	10.2	1,363	9.9
20/40.....	4,580	3.1	1,719	2.7	424	3.3	291	2.3	2,094	3.7	476	3.4
20/50.....	2,663	1.8	1,026	1.6	254	1.9	158	1.3	1,250	2.2	229	1.7
20/70.....	2,666	1.8	1,021	1.6	275	2.1	140	1.1	1,277	2.2	228	1.6
20/100.....	2,436	1.7	973	1.5	273	2.1	117	1.0	1,207	2.1	139	1.0
20/200, or over.....	3,566	2.4	1,411	2.2	440	3.4	153	1.2	1,805	3.2	197	1.4
Blind.....	7		6		3				1			
Abnormal, degree unknown.....	122	.1	44	.1	17	.1	5	.1	66	.1	7	.1

TABLE 15.—Number and percent of NYA youth examined in the United States by specified diseases or defects of the eye

Disease or defect of the eye	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	140,128	94.8	60,011	94.4	12,195	92.7	11,967	95.5	54,852	95.0	13,298	95.2
Youth with defects.....	7,685	5.2	3,541	5.6	963	7.3	565	4.5	2,908	5.0	671	4.8
Slight blepharitis.....	1,574	1.1	755	1.2	192	1.5	65	.5	672	1.2	82	.6
Blepharitis, except slight.....	303	.2	145	.2	35	.3	15	.1	135	.2	8	.1
Slight discharge.....	253	.2	148	.2	44	.3	15	.1	75	.1	15	.1
Discharge, except slight.....	55		35	.1	7	.1	7	.1	9		4	
Trachoma.....	104	.1	81	.1	17	.1	2		20		1	
Pterygium.....	471	.3	245	.4	95	.7	72	.6	99	.2	55	.4
Slight strabismus.....	1,489	1.0	654	1.0	193	1.5	66	.5	669	1.2	100	.7
Strabismus, except slight.....	488	.3	223	.4	53	.4	41	.3	186	.3	38	.3
Nystagmus.....	232	.2	137	.2	55	.4	17	.1	69	.1	9	.1
Conjunctivitis.....	1,043	.7	567	.9	121	.9	61	.5	350	.6	65	.5
All other eye diseases.....	2,517	1.7	990	1.6	280	2.1	256	2.1	921	1.6	350	2.4
Total defects per 100 youths.....	5.8		6.3		8.3		4.9		5.5		5.2	

TABLE 16.—Number and percent of NYA youth examined in the United States by findings of color sense examination and type of tests

Type of color sense test and result	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown test result	3,275		1,218		292		449		1,243		365	
ALL TESTS GIVEN												
Total known youth	144,538	100.0	62,334	100.0	12,866	100.0	12,083	100.0	56,517	100.0	13,604	100.0
Normal reaction	141,757	98.1	60,538	97.1	12,471	96.9	11,711	96.9	56,215	99.5	13,293	97.7
Abnormal, slight degree	2,016	1.4	1,226	2.0	273	2.1	283	2.4	231	.4	276	2.1
Abnormal, except slight	765	.5	570	.9	122	1.0	89	.7	71	.1	35	.2
ISHIHARA TEST												
Total known youth	45,199	100.0	20,824	100.0	4,087	100.0	3,280	100.0	17,384	100.0	3,711	100.0
Normal reaction	43,747	96.8	19,747	94.8	3,866	94.6	3,167	96.5	17,174	98.8	3,650	98.6
Abnormal, slight degree	1,007	2.2	718	3.5	146	3.6	81	2.5	163	.9	45	1.2
Abnormal, except slight	445	1.0	359	1.7	75	1.8	32	1.0	47	.3	7	.2
HOLMGREN YARN TEST												
Total known youth	91,556	100.0	37,876	100.0	8,023	100.0	8,352	100.0	35,806	100.0	9,522	100.0
Normal reaction	90,415	98.8	37,294	98.5	7,881	98.2	8,117	97.2	35,732	99.8	9,272	97.4
Abnormal, slight degree	876	.9	415	1.1	101	1.3	183	2.2	54	.2	224	2.3
Abnormal, medium or marked	265	.3	167	.4	41	.5	52	.6	20		26	.3
OTHER TEST(S) ¹												
Total known youth	7,783	100.0	3,634	100.0	756	100.0	451	100.0	3,327	100.0	371	100.0
Normal reaction	7,595	97.6	3,497	96.2	724	95.8	427	94.7	3,309	99.5	362	97.6
Abnormal, slight degree	133	1.7	93	2.6	26	3.4	19	4.2	14	.4	7	1.9
Abnormal, except slight	55	.7	44	1.2	6	.8	5	1.1	4	.1	2	.5

¹ Includes any other test given as well as youth given more than one type of test, or unspecified type of test.

TABLE 17.—Number and percent of NYA youth examined in the United States by results of auditory acuity test

Auditory acuity ¹ better ear— poorer ear	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined	147,813		63,552		13,158		12,532		57,760		13,969	
POORER EAR												
Unknown rating	2,406		1,053		242		204		843		216	
Known rating	145,407	100.0	62,499	100.0	12,916	100.0	12,238	100.0	56,917	100.0	13,753	100.0
20/20 or more	141,389	97.2	60,604	97.0	12,345	95.6	11,980	97.9	55,344	97.3	13,461	97.9
15/20	1,752	1.2	794	1.3	205	1.6	106	.9	698	1.2	154	1.1
10/20	1,240	.9	587	.9	171	1.3	110	.9	442	.8	101	.7
7.4/20 or less	539	.4	286	.4	94	.7	21	.2	211	.4	21	.1
Slightly deaf	26		6		2		3		17			
Deaf	309	.2	160	.3	79	.6	13	.1	128	.2	8	.1
Abnormal, degree un- known	152	.1	62	.1	20	.2	5		77	.1	8	.1
BETTER EAR												
Unknown rating	4,350		3,206		188		266		689		189	
Known rating	143,463	100.0	60,346	100.0	12,970	100.0	12,266	100.0	57,071	100.0	13,780	100.0
20/20 or more	141,652	98.7	59,512	98.6	12,699	97.9	12,117	98.8	56,394	98.8	13,629	98.9
15/20	876	.6	391	.6	95	.7	50	.4	347	.6	88	.6
10/20	507	.4	222	.4	73	.6	79	.7	152	.3	54	.4
7.4/20 or less	193	.1	97	.2	36	.3	9	.1	82	.1	5	.1
Slightly deaf	20		12		2				7		1	
Deaf	157	.1	89	.2	58	.4	6		60	.1	2	
Abnormal, degree un- known	58	.1	23		7	.1	5		29	.1	1	

¹ This rating is expressed as a fraction with 20 as the denominator and the distance in feet at which an ordinary conversational voice could be heard as the numerator. The numerators (distances) thus recorded were here grouped into 5-foot intervals so that 10/20 includes values from 7.5/20 to 12.4/20, etc. A few youth, not rated on this scale, were reported as "slightly deaf," "deaf," or as having some abnormality the effect of which was not indicated. They are recorded separately above.

TABLE 18.—Number and percent of NYA youth examined in the United States by condition of the ear drums

Condition of ear drums	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
"POORER" EAR ¹												
Total youth examined.....	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown because of wax.....	2,527		1,139		258		185		1,018		185	
Other unknown.....	2,206		991		203		193		826		196	
Total unknown.....	4,733		2,130		461		378		1,844		381	
Total known youth.....	143,080	100.0	61,422	100.0	12,697	100.0	12,154	100.0	55,916	100.0	13,588	100.0
Youth with normal drum.....	135,014	94.4	58,019	94.5	11,849	93.3	11,656	95.9	52,578	94.0	12,761	93.9
Drum absent.....	155	.1	77	.1	27	.2	7	.1	62	.1	9	.1
Drum perforated.....	1,252	.9	605	1.0	177	1.4	52	.4	527	1.0	68	.5
Drum retracted.....	2,732	1.9	1,145	1.8	277	2.2	116	1.0	1,273	2.3	198	1.4
Drum dull.....	3,661	2.5	1,464	2.4	339	2.7	308	2.5	1,552	2.4	537	4.0
Drum, abnormal except above ¹	266	.2	112	.2	28	.2	15	.1	124	.2	15	.1
"BETTER" EAR												
Total youth examined.....	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown because of wax.....	2,451		1,089		272		184		990		188	
Other unknown.....	1,814		834		175		150		689		141	
Total unknown.....	4,265		1,923		447		334		1,679		329	
Total known youth.....	143,548	100.0	61,629	100.0	12,711	100.0	12,198	100.0	56,081	100.0	13,640	100.0
Youth with normal drum.....	136,537	95.1	58,755	95.3	12,006	94.5	11,748	96.3	53,153	94.8	12,881	94.4
Drum absent.....	91	.1	48	.1	14	.1	4		33		6	
Drum perforated.....	970	.7	427	.7	116	.9	45	.4	429	.8	69	.5
Drum retracted.....	2,418	1.7	1,030	1.7	256	2.0	108	.9	1,108	2.0	172	1.3
Drum dull.....	3,312	2.3	1,270	2.1	297	2.3	277	2.3	1,262	2.2	503	3.7
Drum, abnormal except above.....	220	.1	99	.1	22	.2	16	.1	96	.2	9	.1

¹ "Poorer ear" is ear with poorer auditory acuity, except that when both ears were equal the left ear was designated as "poorer."

² Includes "drum reddened," etc.

TABLE 19.—Number and percent of NYA youth examined in the United States by condition of the nose and accessory sinuses

Condition of nose	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	133,232	90.1	56,405	88.8	11,453	87.0	11,544	92.1	52,439	90.8	12,844	91.9
Youth with defects.....	14,581	9.9	7,147	11.2	1,705	13.0	988	7.9	5,321	9.2	1,125	8.1
Chronic sinus infection, slight.....	4,093	2.8	1,979	3.1	483	3.7	232	1.9	1,579	2.7	303	2.2
Chronic sinus infection, except slight.....	720	.5	321	.5	76	.6	42	.3	294	.5	63	.5
Polypi.....	788	.5	285	.4	75	.6	93	.7	264	.5	146	1.0
Perforated septum.....	222	.1	125	.2	46	.3	6	.1	80	.1	11	.1
Deviated septum.....	3,847	2.6	2,429	3.8	606	4.6	80	.6	1,248	2.2	90	.6
Coryza or acute rhinitis.....	1,013	.7	452	.7	86	.6	88	.7	396	.7	77	.6
Allergic rhinitis.....	1,180	.8	487	.8	93	.7	80	.6	510	.9	103	.7
Acute or unqualified sinus infection.....	47	-----	19	-----	7	.1	6	.1	17	-----	5	-----
Epistaxis.....	103	.1	40	.1	11	.1	8	.1	45	.1	10	.1
All other nose abnormalities.....	5,015	3.4	2,205	3.5	491	3.7	482	3.8	1,794	3.1	534	3.8
Total defects per 100 youth.....	11.5		13.1		15.0		8.9		10.8		9.6	

TABLE 20.—Number and percent of NYA youth examined in the United States by condition of the throat

Condition of throat	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total ¹	147,663		63,485		13,146		12,513		57,707		13,958	
Unknown as to tonsils.....	1,750		718		150		159		691		182	
Total known youth, as to tonsils.....	145,913	100.0	62,767	100.0	12,996	100.0	12,354	100.0	57,016	100.0	13,776	100.0
Tonsils normal.....	72,195	49.5	30,698	48.9	6,485	49.9	7,685	62.2	26,686	46.8	7,126	51.7
Tonsils diseased.....	33,313	22.8	14,128	22.5	2,596	20.0	2,983	24.2	12,409	21.7	3,793	27.5
Tonsils completely removed.....	35,174	24.1	15,740	25.1	3,411	26.2	1,425	11.5	15,597	27.4	2,412	17.5
Tonsils partially removed.....	5,231	3.6	2,201	3.5	504	3.9	261	2.1	2,324	4.1	445	3.3
Total youth examined.....	147,663	100.0	63,485	100.0	13,146	100.0	12,513	100.0	57,707	100.0	13,958	100.0
Pharynx normal.....	139,146	94.2	59,513	93.7	12,193	92.8	11,918	95.2	54,426	94.3	13,289	95.2
Pharynx abnormal.....	8,517	5.8	3,972	6.3	953	7.2	595	4.8	3,281	5.7	669	4.8

¹ Excludes 150 youth for whom size of community of residence was unknown.

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TABLE 21.—Number and percent of NYA youth examined in the United States by chest X-ray findings

Chest X-ray findings	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth ¹	147,663	-----	63,485	-----	13,146	-----	12,513	-----	57,707	-----	13,958	-----
Youth not X-rayed.....	134,439	-----	58,795	-----	12,182	-----	11,388	-----	52,415	-----	11,841	-----
Total youth X-rayed.....	13,224	100.0	4,690	100.0	964	100.0	1,125	100.0	5,292	100.0	2,117	100.0
Youth with unreadable X-ray.....	50	.4	14	.3	3	.3	10	.9	21	.4	5	.2
Youth with readable X-ray.....	13,174	99.6	4,676	99.7	961	99.7	1,115	99.1	5,271	99.6	2,112	99.8
Lungs clear.....	11,713	88.6	4,101	87.4	801	83.1	970	86.2	4,737	89.5	1,905	90.0
Inactive tuberculosis.....	786	5.9	326	7.0	75	7.8	83	7.4	292	5.5	85	4.0
Active tuberculosis, minimal.....	77	.6	30	.6	12	1.2	5	.4	25	.5	17	.8
Active tuberculosis, moderate.....	33	.2	12	.3	3	.3	-----	-----	14	.3	7	.3
Active tuberculosis, far advanced.....	44	.3	18	.4	11	1.1	3	.3	22	.4	1	-----
Active tuberculosis, stage unknown.....	66	.5	29	.6	10	1.0	7	.6	20	.4	10	.5
Positive lung findings, except definite tuberculosis.....	377	2.9	139	3.0	38	3.9	35	3.1	124	2.4	79	3.7
Positive findings in heart or vessels.....	133	1.0	35	.7	13	1.3	20	1.8	42	.8	36	1.7
Positive findings other than above.....	99	.7	18	.4	4	.4	12	1.1	30	.6	39	1.8

¹ Excludes 150 youth for whom size of community of residence was unknown.

TABLE 22.—Number and percent of NYA youth examined in the United States by findings of stethoscopic examination of the heart

Condition of heart from stethoscopic examination	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined..	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	138,065	93.4	60,061	94.5	12,379	94.1	11,787	94.1	53,630	92.9	12,587	90.1
Organic heart disease.....	3,653	2.5	1,388	2.2	374	2.8	305	2.4	1,408	2.4	552	4.0
Functional murmur only.....	4,347	2.9	1,428	2.3	258	2.0	280	2.2	2,037	3.5	602	4.3
Rhythm irregularity only.....	564	.4	215	.3	56	.4	59	.5	221	.4	69	.5
Functional murmur with rhythm irregularity.....	88	.1	25		4		9	.1	36	.1	18	.1
Unclear as to heart condition..	1,096	.7	435	.7	87	.7	92	.7	428	.7	141	1.0

TABLE 23.—Number and percent of NYA youth examined in the United States by systolic and diastolic blood pressure readings

Blood pressure (mm. of mercury)	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown as to blood pressure	496		246		54		51		149		50	
Total known youth	147,317	100.0	63,306	100.0	13,104	100.0	12,481	100.0	57,611	100.0	13,919	100.0
Systolic blood pressure:												
Below 75	53		23		5		10	.1	16		4	
75 to 84	245	.2	81	.1	14	.1	26	.2	111	.2	27	.2
85 to 94	2,255	1.5	680	1.1	124	.9	197	1.6	1,062	1.9	316	2.3
95 to 104	11,659	7.9	3,449	5.5	557	4.3	856	6.9	5,831	10.1	1,523	10.9
105 to 114	37,607	25.5	13,187	20.8	2,315	17.7	3,114	24.9	16,946	29.4	4,360	31.3
115 to 124	54,979	37.3	24,404	38.5	4,856	37.1	4,751	38.1	20,923	36.3	4,901	35.2
125 to 134	26,495	18.0	13,501	21.3	3,067	23.4	2,268	18.2	8,823	15.3	1,903	13.7
135 to 144	9,890	6.7	5,547	8.8	1,446	11.0	869	7.0	2,858	5.0	616	4.4
145 to 154	2,688	1.8	1,587	2.5	457	3.5	281	1.8	692	1.2	178	1.3
155 to 164	937	.7	567	.9	176	1.3	91	.7	230	.4	49	.4
165 and over	509	.4	280	.5	87	.7	68	.5	119	.2	42	.3
Diastolic blood pressure:												
Under 25	44		16		5		3		21		4	
25 to 34	91	.1	37	.1	12	.1	15	.1	32	.1	7	.1
35 to 44	417	.3	217	.3	37	.3	40	.3	126	.2	34	.2
45 to 54	2,445	1.6	1,130	1.8	168	1.3	224	1.8	890	1.6	201	1.4
55 to 64	19,537	13.3	8,238	13.0	1,349	10.3	1,619	13.0	7,796	13.5	1,884	13.5
65 to 74	54,490	37.0	22,770	36.0	4,184	31.9	4,309	34.5	22,323	38.8	5,088	36.6
75 to 84	55,274	37.5	24,410	38.6	5,492	41.9	4,669	37.4	21,089	36.6	5,106	36.7
85 to 94	12,739	8.6	5,564	8.8	1,541	11.8	1,302	10.5	4,559	7.9	1,314	9.4
95 to 104	1,890	1.3	778	1.2	263	2.0	243	2.0	637	1.1	232	1.7
105 to 114	316	.2	121	.2	47	.4	41	.3	118	.2	36	.3
115 and over	74	.1	25		6		16	.1	20		13	.1

TABLE 24.—Number and percent of NYA youth examined in the United States by pulse rate, without special exercise

Pulse rate (beats per minute)	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown	1,238		470		96		112		539		117	
Total known youth	146,575	100.0	63,082	100.0	13,062	100.0	12,420	100.0	57,221	100.0	13,852	100.0
66 and under	8,060	5.5	4,529	7.2	967	7.4	1,346	10.8	1,804	3.2	381	2.8
67 to 70	11,928	8.1	5,887	9.3	1,264	9.7	1,495	12.0	3,675	6.4	871	6.3
71 to 74	26,553	18.1	12,675	20.1	2,721	20.8	2,883	23.2	8,915	15.6	2,080	15.0
75 to 78	21,880	14.9	9,862	15.6	2,061	15.8	1,898	15.3	8,004	14.0	2,116	15.3
79 to 82	27,518	18.8	11,144	17.7	2,237	17.1	2,060	16.6	11,205	19.6	3,109	22.4
83 to 86	15,686	10.7	5,892	9.3	1,124	8.6	1,006	8.1	6,998	12.2	1,790	12.9
87 to 90	14,329	9.8	5,412	8.6	1,069	8.2	836	6.7	6,536	11.4	1,545	11.2
91 to 94	4,320	2.9	1,644	2.6	317	2.4	212	1.7	2,008	3.5	456	3.3
95 to 98	5,723	3.9	2,129	3.4	425	3.3	262	2.1	2,765	4.8	567	4.1
99 to 102	5,202	3.6	1,981	3.1	452	3.4	219	1.8	2,512	4.4	490	3.5
103 and over	5,376	3.7	1,927	3.1	425	3.3	203	1.7	2,799	4.9	447	3.2
Median rate	79.71		78.43		78.06		76.02		81.22		80.90	
Percent 67 to 90		80.4		80.6		80.2		81.9		79.2		83.1
Percent 71 to 82		51.8		53.4		53.7		55.1		49.2		52.7

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TABLE 25.—Number and percent of NYA youth examined in the United States by results of blood serologic tests for syphilis

Results of test	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth.....	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown.....	5,226		2,195		537		287		2,311		433	
Total youth with known results.....	142,587	100.0	61,357	100.0	12,621	100.0	12,245	100.0	55,449	100.0	13,536	100.0
Negative.....	139,739	98.0	60,983	99.4	12,501	99.1	11,552	94.3	54,951	99.1	12,253	90.5
Doubtful, 1 test.....	252	.2	56	.1	13	.1	33	.3	86	.2	77	.6
Doubtful, 2 or more tests.....	93	.1	12	.0	5	.0	10	.1	45	.1	26	.2
Positive, 1 test.....	1,786	1.2	219	.4	67	.5	511	4.2	259	.4	797	5.9
Positive, 2 or more tests.....	594	.4	62	.1	20	.2	100	.8	90	.2	342	2.5
Syphilis stated present though no test.....	123	.1	25	.0	15	.1	39	.3	18	.0	41	.3

TABLE 26.—Number and percent of NYA youth examined in the United States by findings of the genito-urinary examination

Genito-urinary diseases (except venereal)	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth.....	147,813		63,552		13,158		12,532		57,760		13,969	
Youth not examined.....	10,717		523		144		56		8,076		2,062	
Youth examined.....	137,096	100.0	63,029	100.0	13,014	100.0	12,476	100.0	49,684	100.0	11,907	100.0
Youth with no defects.....	118,595	86.5	52,582	83.4	11,022	84.7	9,922	79.5	45,904	92.4	10,187	85.6
Youth with defects.....	18,501	13.5	10,447	16.6	1,992	15.3	2,554	20.5	3,780	7.6	1,720	14.4
Urethral discharge.....	1,505	1.1	180	.3	40	.3	288	2.3	590	1.2	457	3.9
Vaginal or cervical discharge.....	1,971	1.4							1,289	2.6	682	5.7
Ulcerations.....	110	.1	25		4		28	.2	32	.1	25	.2
Varicocele.....	2,914	2.1	2,707	4.3	548	4.2	207	1.7				
Menstrual disorders.....	2,301	1.7							1,839	3.7	462	3.9
Hydrocele.....	287	.2	256	.4	56	.4	31	.3				
Abnormal prepuce.....	8,802	6.4	6,791	10.8	1,185	9.2	2,011	16.1				
Other genital defects.....	1,863	1.4	1,055	1.7	277	2.1	157	1.3	350	.7	301	2.5
Nephritis.....	57		32	.1	2		3		19		3	
Other defects of kidney or ureters.....	78	.1	22		8	.1	3		46	.1	7	0.1
Other defects of urinary system.....	274	.2	59	.1	13	.1	27	.2	126	.2	62	.5
Total defects per 100 youth.....	14.7		17.7		16.4		22.1		8.6		16.8	

TABLE 27.—Number and percent of NYA youth examined in the United States by findings of ano-rectal examination

Condition of ano-rectal system	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth.....	147,813		63,552		13,158		12,532		57,760		13,969	
Youth not given ano-rectal examination.....	5,372		388		62		58		4,098		828	
Youth examined.....	142,441	100.0	63,164	100.0	13,096	100.0	12,474	100.0	53,662	100.0	13,141	100.0
Youth with no defects.....	139,367	97.8	62,206	98.5	12,750	97.4	12,267	98.3	52,279	97.4	12,615	96.0
Youth with defects.....	3,074	2.2	958	1.5	346	2.6	207	1.7	1,383	2.6	526	4.0
Hemorrhoids, slight.....	2,407	1.7	778	1.2	266	2.0	160	1.3	1,068	2.0	401	3.1
Hemorrhoids, except slight.....	367	.3	102	.2	49	.4	25	.2	142	.3	98	.7
Ulcerations.....	142	.1	20		6	.1	9	.1	105	.2	8	.1
Prolapse.....	46		14		6		7		16		9	.1
Fistula.....	168	.1	35	.1	17	.1	7		113	.2	13	.1
Abscess.....	14		8		2				4		2	
Fissure.....	58	.1	10		6	.1	9	.1	34	.1	5	
Proctitis.....	17		11		1				6			
All other ano-rectal abnormalities.....	25		7		2				13		5	
Total defects per 100 youth.....	2.3		1.5		2.7		1.7		2.8		4.1	

TABLE 28.—Number and percent of NYA youth examined in the United States by findings of examination for hernia

Type of hernia	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth.....	147,813		63,552		13,158		12,532		57,760		13,969	
Youth not examined.....	185		10		4		3		131		41	
Youth examined for hernia.....	147,628	100.0	63,542	100.0	13,154	100.0	12,529	100.0	57,629	100.0	13,928	100.0
Youth with no hernia.....	145,745	98.7	62,328	98.1	12,792	97.2	12,272	97.9	57,426	99.7	13,719	98.5
Youth with hernia.....	1,883	1.3	1,214	1.9	362	2.8	257	2.1	203	0.3	209	1.5
Inguinal hernia.....	1,166	.8	966	1.5	277	2.0	146	1.2	46	.1	8	.1
Double inguinal hernia.....	106	.1	86	.1	40	.3	18	.2	2			
Femoral hernia.....	19		11		3		3		5			
Ventral hernia.....	92	.1	39	.1	16	.1	1		22		30	.2
Umbilical hernia.....	401	.3	76	.1	15	.1	77	.6	106	.2	142	1.0
Diaphragmatic hernia.....												
Other intestinal hernia.....	7		4				2		1			
Hernia of unknown site.....	60		38	.1	14	.1	10	.1	11		1	
Diastasis recti.....	55		2		1		1		10		42	.3

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TABLE 29.—Number and percent of NYA youth examined in the United States by findings of abdominal examination

Findings on abdominal examination	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth.....	147,813		63,552		13,158		12,532		57,760		13,969	
No abdominal examination.....	6		2						3		1	
Total youth examined.....	147,807	100.0	63,550	100.0	13,158	100.0	12,532	100.0	57,757	100.0	13,968	100.0
Youth with no defect.....	143,367	97.0	62,975	99.1	12,999	98.8	12,433	99.2	54,807	94.9	13,152	94.2
Youth with defects.....	4,440	3.0	575	.9	159	1.2	99	.8	2,950	5.1	816	5.8
Tenderness.....	3,780	2.6	396	.6	111	.8	68	.6	2,596	4.5	720	5.2
Abnormality of liver.....	294	.2	95	.2	26	.2	13	.1	162	.3	24	.2
Spleen slightly enlarged.....	186	.1	58	.1	11	.1	8	.1	107	.2	13	.1
Spleen enlarged, except slight.....	26		14		6	.1	2		9		1	
Other abdominal dysfunction or complaint ¹	450	.3	51	.1	17	.1	17	.1	280	.5	102	.7
Total defects per 100 youth.....	3.2		1.0		1.3		0.9		5.5		6.2	

¹ Except those definitely referable to the digestive system.

TABLE 30.—Number and percent of NYA youth examined in the United States by orthopedic defects recorded

Orthopedic impairments	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	140,445	95.0	59,530	93.7	11,839	90.0	11,966	95.5	55,417	95.9	13,532	96.9
Youth with defects.....	7,368	5.0	4,022	6.3	1,319	10.0	566	4.5	2,343	4.1	437	3.1
One hand or arm lost.....	113	.1	75	.1	45	.3	10	.1	27	.1	1	----- .2
One hand or arm impaired.....	724	.5	438	.7	135	1.0	63	.5	193	.3	30	----- .2
One foot or leg lost.....	108	.1	84	.1	39	.3	17	.1	6	----- .1	1	----- .5
One foot or leg impaired.....	1,318	.9	744	1.2	288	2.2	109	.9	396	.7	69	----- .5
Fingers (any number) lost.....	521	.4	374	.6	128	1.0	51	.4	80	.1	16	----- .1
Fingers (any number) im- paired.....	580	.3	358	.6	115	.9	58	.5	139	.2	25	----- .2
Toes (any number) lost.....	94	.1	61	.1	21	.2	8	----- .2	24	----- .8	1	----- .4
Toes (any number) impaired.....	751	.5	229	.4	54	.4	23	.2	438	.8	61	----- .4
Two or more major members ¹ lost.....	4	-----	3	-----	2	-----	-----	-----	1	-----	-----	-----
Two or more major members ¹ impaired.....	948	.6	515	.8	222	1.7	71	.6	297	.5	65	----- .5
Spine or back impaired.....	1,849	1.3	879	1.4	280	2.1	137	1.1	683	1.2	160	----- 1.1
Trunk impaired.....	1,109	.7	721	1.1	189	1.4	63	.5	280	.5	45	----- .3
Total defects per 100 youth.....	5.5		7.1		11.5		4.9		4.4		3.3	

¹ Hands, feet, arms, or legs.

TABLE 31.—Number and percent of NYA youth examined in the United States by nervous and mental condition

Nervous and mental condition	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	142,758	96.6	61,114	96.2	12,325	93.7	12,243	97.7	55,804	96.6	13,597	97.3
Youth with defects.....	5,055	3.4	2,438	3.8	833	6.3	289	2.3	1,956	3.4	372	2.7
Epilepsy.....	245	.2	158	.2	61	.5	11	.1	63	.1	13	.1
Extreme nervousness.....	1,451	1.0	488	.8	147	1.1	49	.4	787	1.4	127	.9
Tic.....	66	.....	38	.....	11	.1	4	.....	22	.....	2	.....
Speech defect (except mutism).....	615	.4	422	.7	164	1.3	46	.4	133	.2	14	.1
Slight mental deficiency.....	1,323	.9	806	1.3	275	2.1	95	.8	356	.6	66	.5
Marked mental deficiency.....	492	.3	255	.4	97	.7	15	.1	198	.4	24	.2
Dyskinesias.....	76	.....	53	.1	19	.1	5	.....	16	.....	2	.....
Psychoses.....	25	.....	13	.....	7	.1	3	.....	7	.....	2	.....
Neuroses.....	81	.1	27	.....	11	.1	5	.....	41	.1	8	.1
All other definitely neurological diseases, abnormalities, or dysfunctions.....	886	.6	362	.6	137	1.0	58	.5	351	.6	115	.8
All other nervous and mental abnormalities (including ill-defined).....	429	.3	181	.3	54	.4	27	.2	189	.3	32	.2
Total defects per 100 youth.....	3.8		4.4		7.5		2.5		3.7		2.9	

TABLE 32.—Number and percent of NYA youth examined in the United States by condition of the skin

Condition of skin	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined.....	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
Youth with no defects.....	120,904	81.8	51,665	81.3	10,906	82.9	11,033	88.0	46,431	80.4	11,775	84.3
Youth with defects.....	26,909	18.2	11,887	18.7	2,252	17.1	1,499	12.0	11,329	19.6	2,194	15.7
Acne, except marked.....	19,982	13.5	8,880	14.0	1,601	12.2	1,043	8.3	8,434	14.6	1,625	11.6
Marked (extreme) acne.....	915	.6	500	.8	100	.8	29	.3	335	.6	51	.4
Edema.....	201	.1	70	.1	28	.2	6	-----	94	.2	31	.2
Functional and/or allergic skin diseases.....	644	.4	225	.4	72	.5	21	.2	363	.6	35	.3
Bacterial skin diseases.....	357	.3	223	.4	40	.4	24	.2	94	.2	16	.1
Toxic eruptions, dermatitis, physical dermatoses.....	197	.1	115	.2	31	.2	6	-----	68	.1	8	-----
Fungus and/or yeast skin disease.....	1,493	1.0	724	1.1	150	1.1	66	.5	623	1.1	80	.6
Parasitic skin diseases.....	257	.2	152	.2	45	.3	13	.1	87	.2	5	-----
Etiologically ill-defined skin diseases.....	262	.2	106	.2	33	.3	6	-----	139	.2	11	.1
Hyperplastic, benign neoplastic pigmentary, and noninflammatory vascular disturbances of skin.....	2,410	1.6	908	1.4	224	1.7	168	1.4	1,099	1.9	235	1.7
All other skin diseases (including ill-defined ones).....	2,028	1.4	731	1.1	195	1.5	186	1.5	890	1.5	221	1.6
Total defects per 100 youth.....	19.4		19.9		19.2		12.5		21.2		16.6	

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TABLE 33.—Number and percent of NYA youth examined in the United States by findings of urinalysis

Results of test	Total		Male						Female			
			White				Negro		White		Negro	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth	147,813		63,552		13,158		12,532		57,760		13,969	
Unknown, including not tested	3,588		1,262		281		409		1,276		641	
Total youth with known results	144,225	100.0	62,290	100.0	12,877	100.0	12,123	100.0	56,484	100.0	13,328	100.0
Youth with no defects	132,883	92.1	57,845	92.9	12,125	94.2	11,144	91.9	51,844	91.8	12,050	90.4
Youth with defects	11,342	7.9	4,445	7.1	752	5.8	979	8.1	4,640	8.2	1,278	9.6
Slight degree of sugar	3,164	2.2	1,282	2.0	273	2.1	396	3.3	1,119	2.0	367	2.8
Medium degree of sugar	335	.2	137	.2	33	.3	31	.2	123	.2	44	.4
Marked degree of sugar	235	.2	115	.2	34	.3	22	.2	79	.1	19	.1
Slight degree of albumin	5,442	3.8	2,010	3.2	294	2.3	381	3.1	2,474	4.4	577	4.3
Medium degree of albumin	1,084	.7	489	.8	70	.5	78	.6	268	.7	119	.9
Marked degree of albumin	712	.5	324	.5	31	.2	49	.4	268	.5	71	.5
Slight degree of other pathological findings	1,048	.7	414	.7	59	.5	80	.7	419	.8	135	1.0
Other pathological findings except slight degree	272	.2	44	.1	10	.1	33	.3	128	.2	67	.5
Total defects per 100 youths	8.5		7.7		6.3		8.8		8.9		10.5	

TABLE 34.—Number and percent of NYA youth examined in the United States by certain "Other diseases and dysfunctions"

"Other" diseases or dysfunctions	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total youth examined	147,813	100.0	63,552	100.0	13,158	100.0	12,532	100.0	57,760	100.0	13,969	100.0
No "other" disease	121,858	82.4	53,685	84.5	10,813	82.2	10,842	86.5	46,435	80.4	10,896	78.0
One or more "other" diseases	25,955	17.6	9,867	15.5	2,345	17.8	1,690	13.5	11,325	19.6	3,073	22.0
Infectious or parasitic diseases ¹	67		32		8	.1	3		31	.1	1	
Disease or dysfunction of breast ²	199	.1	27		7	.1	10	.1	134	.2	28	.2
Tuberculosis ³	28		15		7	.1	5		6		2	
Gonorrhea ⁴	413	.3	46	.1	19	.1	174	1.4	104	.2	89	.6
Abnormality of larynx ⁵	30		9		1		5		15		1	
Malignant neoplasms	3						1		2			
Nonmalignant neoplasm, cysts or other tumors ⁶	498	.3	186	.3	55	.4	39	.3	197	.3	76	.6
Acute rheumatic fever	11		4		1				5		2	
Diabetes Mellitus	178	.1	98	.2	42	.3	4		67	.1	9	.1
Goitre or hyperthyroidism	892	.6	92	.1	25	.2	12	.1	637	1.1	151	1.1
Other diseases of endocrine glands	585	.4	250	.4	73	.5	19	.2	262	.5	54	.4
Malnutrition or underweight ⁷	7,381	5.0	3,601	5.7	642	4.9	410	3.3	2,648	4.6	722	5.2
Other nutritional diseases	96	.1	38	.1	8	.1	9	.1	32	.1	17	.1
Upper respiratory infection ⁸	287	.2	117	.2	26	.2	33	.3	100	.2	37	.3
Other diseases of blood or blood-forming organs	17		10		3		1		5		1	
Chronic poisoning, or intoxication	2						1		1			
Diseases of the arteries	9		5		1		1		3			
Varicose veins ⁹	268	.2	142	.2	62	.5	15	.1	101	.2	10	.1
Other disease or dysfunction of circulatory system ¹⁰	13		5		2				5		3	
Ulcer of stomach or duodenum	27		13		10	.1	1		12		1	
Diarrhea or enteritis	23		5		2		1		12		5	
Appendicitis	393	.3	67	.1	16	.1	5		293	.5	28	.2
Digestive dysfunctions ¹¹	1,326	.9	296	.4	95	.7	63	.5	718	1.3	309	2.2
Complications of pregnancy, childbirth, or the puerperium	7								4		3	

See footnotes at end of table.

TABLE 34.—Number and percent of NYA youth examined in the United States by certain "Other diseases and dysfunctions"—Con.

"Other" diseases or dysfunctions—Continued ¹	Total		Male						Female			
			White				Negro		White		Negro	
			All ages		21-24							
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Arthritis ¹²	125	0.1	45	0.1	16	0.1	8	0.1	63	0.1	9	0.1
Other diseases of bones or joints ¹³	231	.2	134	.2	49	.4	16	.1	63	.1	18	.1
Flat foot	3,288	2.2	1,843	2.9	436	3.3	445	3.6	784	1.4	216	1.6
Other diseases or dysfunctions of organs of movement or back ¹⁴	227	.2	107	.2	32	.2	19	.1	87	.2	14	.1
Postural defect	2,545	1.7	1,325	2.1	240	1.8	87	.7	941	1.6	192	1.4
Obesity or overweight ¹⁵	4,116	2.8	842	1.3	271	2.1	86	.7	2,649	4.6	539	3.9
Venereal disease ¹⁶	16		3		1		6		4		3	
Pregnancy	172	.1							85	.1	87	.6
Adenopathy, cause unspecified	508	.3	251	.4	39	.3	81	.7	131	.2	45	.3
Otitis media and other diseases of the ear ¹⁷	666	.5	378	.6	105	.8	21	.2	253	.4	14	.1
All other diseases ¹⁸	5,425	3.7	1,431	2.3	421	3.2	284	2.3	2,811	4.9	899	6.4
Total "other" diseases per 100 youth	20.3		17.9		20.6		14.9		23.0		25.7	

¹ Except tuberculosis, venereal diseases, and skin diseases.² Except tumors, or conditions accompanying pregnancy.³ Except of the lung.⁴ Except on laboratory findings.⁵ Except tuberculosis or tumors.⁶ Except skin conditions.⁷ Except "thin," "slightly underweight," etc.⁸ Including "cold," unqualified.⁹ Except hemorrhoids or varicocele.¹⁰ Except organic heart disease, irregularity or murmur.¹¹ Including all complaints definitely referable to the digestive system, and excluding conditions specifically listed above.¹² Except crippling.¹³ Except deforming, crippling, or paralyzing, and except sprains or strains.¹⁴ Including correctable weakness, sprains or strains.¹⁵ Except "slightly overweight."¹⁶ Except gonorrhea or syphilis.¹⁷ Except deafness or abnormalities of the canal or drums.¹⁸ Including ill-defined.

